Texas A&M University
Department of Animal Science

Academic Program Review

February 10-13, 2019
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Texas A&M University Academic Program Review (APR)

The Academic Program Review (APR) process at Texas A&M University provides the occasion for academic units to plan strategically, assess the quality and efficacy of their programs, and determine the best courses of action for ongoing improvement. APR is at the heart of our institutional commitment to excellence, and we sincerely thank you for assisting us. This letter provides you with the charge to the committee and a brief overview of the department.

PEER REVIEW TEAM CHARGE

Please examine the department and its programs and make recommendations that will help in planning improvements. Your resources are a self-study report prepared by the department, copies of materials from the program's last review, information you gain through personal interactions while visiting Texas A&M University, copies of strategic plans and goal-setting documents at the department, college, and/or university level, and any additional information requested by you or by the department. Within the broad charge of recommending ways the department can continue to improve are some specific questions that we would like you to address:

- Based on the data / information provided in the self-study report or gathered by the review team, what are the department's overall strengths and weaknesses?
- How well do the department's strategic goals align with those of its college and with those of Texas A&M University?
- How would you compare this department with its peers? Specifically, is the curriculum directly related and appropriate to the mission and goals of the institution?
- What improvements (including student learning and faculty development) has the department made since the previous program review?
- With only current resources or a modest infusion of new ones, what specific recommendations could improve the department's performance, marginally or significantly?

We look forward to meeting with you during your time on campus. If you have any questions or require additional information prior to your visit, Ms. Bettyann Zito, APR Program Coordinator, at apr@tamu.edu.

Thank you.
SUNDAY, FEBRUARY 10

Afternoon     Review Team arrives in College Station
Accommodations:   One Circle Drive
                  Texas A&M University
(Rental car will be available)
6:30 PM     Dinner at Porters (Hosted by Cliff Lamb)

MONDAY, FEBRUARY 11 (DAY 1)

8:00 - 8:45 AM     Entry meeting and breakfast with Provost's Administrative Team
                   (One Circle Drive)
8:45 - 10:00     Meeting with Dean Patrick Stover and Executive Associate Dean Clare Gill
                   (One Circle Drive)
10:00 - 11:30     Meet with Department of Animal Science Administration
                   (One Circle Drive)
                   Dr. Cliff Lamb (Professor and Head)
                   Dr. Wes Osburn (Associate Professor and Associate Head for Academic
                   Programs)
                   Dr. Ron Gill (Professor and Extension Livestock Specialist and Associate Head
                   for Extension)
                   Dr. Jason Sawyer (Associate Professor and Associate Head for Operations)
                   Dr. Shawn Ramsey (Professor and Assistant Head for Undergraduate
                   Programs)
11:30 - 1:30 PM     Luncheon with College of Agriculture and Life Sciences Department Heads or their
                   representatives
                   (Kleberg, Room 126)
1:30 - 3:30     Tour Kleberg Departmental Facilities
                   First Floor Escort: Dr. Leslie Frenzel
                   Second Floor Escort: Dr. Tryon Wickersham
                   Third Floor Escort: Dr. Matt Taylor
                   Fourth Floor Escort: Dr. Rodolfo Cardoso
                   Rosenthal Escort: Ray Riley
3:30 - 4:00     Meet with Animal Science Assistant Professors
                   (Kleberg, Room 126)
4:00 - 4:30     Meet with Animal Science Associate Professors
                   (Kleberg, Room 126)
4:30 - 5:00  Meet with Animal Science Associate Professors  
(Kleberg, Room 126)

5:30 - 6:30  Reception with Faculty  
(Kleberg, Hesby Atrium)

7:30  Working Dinner  
(One Circle Drive)  
(Meal provided by Department of Animal Science)

TUESDAY, FEBRUARY 12 (DAY 2)

7:30 - 8:30 AM  Entry Interview with Texas A&M University Administrative Team  
(One Circle Drive)

9:00 - 12:00 PM  Meet with Department of Animal Science Faculty Committees  
(30 minutes each)  
(Kleberg, Room 126)  
Undergraduate Program Council  
Graduate Program Council  
Faculty Advisory Council  
Social Committee  
Climate Committee  
Scholarship Committee

12:00 - 1:00  Lunch with Animal Science Advisors Office  
(TBD)

1:15  Meetings with Students  
(Kleberg, Room 126)  
1:15  Undergraduate Students  
1:45  Masters Students  
2:15  Doctoral Students

3:00  Tour Large Animal Facilities  
Escort: Steve Canon

5:45  Review Team Returns to One Circle Drive

6:30  Working Dinner Session  
(One Circle Drive)  
Review Team prepares draft report for Exit Interview and Faculty Debriefing  
(Meal provided by Department of Animal Science)
WEDNESDAY, FEBRUARY 13 (DAY 3)

7:30 - 8:45 AM  Exit Meeting and Breakfast with APR Administrative Team and Dean  
(One Circle Drive)

9:00 - 10:00  Review Team Debriefs Department Head  
(One Circle Drive)

10:00 - 11:00  Review Team Debriefs Faculty, Staff and Students  
(Kleberg, Room 126)

11:00 - 12:00 PM  Review Team makes final changes to draft report, as necessary

12:00  Lunch with Department Leadership and Faculty  
(Kleberg, Room 126)

Afternoon  Review Team Departs College Station
The faculty, staff, and students of the Department of Animal Science at Texas A&M University welcome you to campus for this scheduled Academic Program Review (APR). External reviews of all degree-granting departments or programs are conducted by the Provost's office at Texas A&M University every seven years. The current review will span fiscal years (FY) 2012 through 2017. This self-study document provides detailed information relative to our departmental programs, including our strengths, weaknesses, opportunities, and threats. Enclosed historical information and data will assist with your assessment of departmental teaching, research, and extension or outreach programs, as well as our recently updated strategic plan that identified five Areas of Excellence for which we are or will be nationally and internationally recognized.

The Department of Animal Science first became an independently identifiable department in 1903 known as the Department of Animal Husbandry. As enrollment and interest in these fields grew, the teaching component of the Department continued to expand. In 1924, the Graduate School at Texas A&M was formed, and doctoral programs at the A&M College were established in 1936. In 1963, the A&M College of Texas was renamed as Texas A&M University, and the School of Agriculture became the College of Agriculture. Soon after, in recognition of the increasingly technical nature of the curriculum, the Department of Animal Husbandry was renamed as the Department of Animal Science (1965). The Department was relocated from the Animal Industries building in 1977 to our current location in the Kleberg Animal and Food Sciences Center.

By 2050, the world's population is projected to grow by one-third, reaching between 9 and 10 billion. The demand for calories from animal products will nearly double, highlighting the critical importance of the world's animal agriculture system. Meeting the nutritional needs of this population and its demand for animal products requires significant investment of resources and policy changes that support animal agricultural production. Ensuring sustainable agricultural growth is essential to addressing the global challenge to food security. Meeting the global demand for products of animal origin in 2050 requires an approach that ensures global food security and addresses the impact of climate change and natural resource constraints. There will continue to be a critical need for trained personnel to address animal product safety and quality issues, and effectively communicate and assist in the adoption of new knowledge, information, and technologies.

Rising feed, fuel, and fertilizer costs, global competition, and societal concerns about energy policy have created economic challenges for U.S. animal agriculture. In 2014, Texas animal agriculture contributed: $43.2 billion in economic output, 287,445 jobs, $7.9 billion in earnings, $1.6 billion in income taxes (local, state, federal) and $553.9 million in property taxes (United Soybean Board, 2015). Livestock producers face threats from pervasive and invasive animal diseases. Changing global markets and management of vital resource inputs incentivize ranchers to find new ways to increase efficiency to maintain competitiveness and minimize risk. Research and educational programs are critical to assist animal agriculture operations and related industries to be sustainable and profitable for the long term.

The training of competent future animal science researchers, operators, educators, and leaders is essential to discover and disseminate new knowledge, information, and technologies that sustain animal agriculture production systems to meet world animal protein demands in 2050. A comprehensive, multidisciplinary, competency-based curriculum is the cornerstone of the Texas A&M University Department of Animal Science plan to train, develop and educate future cohorts of trained animal scientists well equipped to address national and international challenges facing animal agriculture. Therefore, the Department completed a comprehensive revision to the undergraduate curriculum that was implemented in Fall 2018. In 2018, the Department of Animal Science at Texas A&M University remains one of the largest of its kind in the United States, offering programs leading to B.S., M.Ag., M.S., and Ph.D. degrees in Animal Science, Animal Breeding, and Physiology of Reproduction. In
addition, our faculty are members of Intercollegiate Faculties capable of granting degrees in Nutrition, Food Science and Technology, Biotechnology, and Genetics. Our Department consists of 60 Extension, research, and teaching faculty, and our Fall 2017 Department enrollment included 1,209 undergraduate students, 79 Masters students (includes M.S. and M.Agr.), and 51 Ph.D. students.

Over the next decade, our diverse and engaged faculty, staff, and student body will continue to seek excellence in all of our programs and initiatives. We will continue to move forward as a seamless department with no visible boundaries or distinctions between teaching, research, and Extension (outreach). To more effectively fulfill the mission of the Department of Animal Science, Areas of Excellence have been identified and developed. The goal for the Areas of Excellence is to provide focused areas of scholarship within the Department of Animal Science for which we may be or will become a national and international leader. The Areas of Excellence align with the missions of both the Department and College, as well as the strategic pillars of the University. Department of Animal Science Areas of Excellence are:

• Cattle Adapted to Tropical and Subtropical Environments
• Pregnancy and Developmental Programming
• Safety, Quality, and Nutrition of Food Products
• Student and Stakeholder Engagement in Animal Science
• Quantifiable Animal Performance

We are pleased to have this opportunity meet with you during this academic program review and hope to gain your additional insight, which we can use to further enhance the impact of our nationally- and internationally-recognized Department.
The Department of Animal Science is an academic unit within the College of Agriculture and Life Sciences (COALS) at Texas A&M University. Consistent with the land-grant institution concept, many of our faculty have joint appointments with the College and with Texas A&M AgriLife Research or Texas A&M AgriLife Extension. As such, the Department serves not only as an academic unit but also as a component of the integrated, multiagency teaching, research, Extension, and service elements of the Texas A&M System.

**Brief Degree Program History**

The Department of Animal Science, as an independently identifiable entity of the Agricultural and Mechanical College of Texas, was established in 1903 in a separation of three units within the Department of Agriculture, one of which was the Department of Animal Husbandry. As enrollment and interest in these fields grew, the teaching component of the Department expanded and generated the Departments of Dairy Husbandry (1911), Poultry Science (1923), and Biochemistry and Nutrition (1943).

The Graduate School at Texas A&M was formed in 1924, and doctoral programs were established in 1936. Due to growing interest in pursuing advanced studies, the foundation of our current bachelor's degree options, in which students may elect to prepare for industry or graduate study pathways, was established in 1948. In 1963, the A&M College of Texas was renamed as Texas A&M University, and the School of Agriculture became the College of Agriculture. Soon after, in recognition of the increasingly technical nature of the curriculum, the Department of Animal Husbandry was renamed as the Department of Animal Science (1965). At that same time, the Dairy Science program rejoined the Department, as well as oversight of degree programs in Food Science and Technology.

The Department was relocated in 1977 from the Animal Industries building on the main campus to our current location in the Kleberg Animal and Food Sciences Center. The M.S. and Ph.D. programs in animal nutrition were designated as degrees in Nutrition in 1980, and the undergraduate degree program in Nutritional Science (primarily focused on human nutrition) was initiated by the Department in 1982. These actions were complemented in 1989 by the return of Extension Specialists in Nutrition to the Department of Animal Science, and paved the way for the formation of an interdisciplinary Faculty of Nutrition. The Department of Nutrition and Food Science was formed from these programs in 2005.

In the years since occupying its current home in the Kleberg Center, the Department of Animal Science has continued to grow and thrive as one of the 14 academic departments in Texas A&M University's College of Agriculture and Life Sciences (https://aglifesciences.tamu.edu/). The College is home to more than 7,800 students and more than 300 faculty members. Collectively, its departments offer a total of 30 undergraduate degrees, 24 master of science degrees, and 23 doctoral degrees.

In 2018, the Department of Animal Science at Texas A&M University remains one of the largest of its kind in the United States, offering degree programs leading to B.S., M.Ag., M.S. and Ph.D. programs in Animal Science, Animal Breeding, and Physiology of Reproduction. Additionally, our faculty are members of Intercollegiate Faculties capable of granting degrees in Nutrition, Food Science and Technology, Biotechnology, and Genetics. We remain committed to developing and maintaining high-quality and relevant educational programs for our primary stakeholders – students. Our dedication to this goal has formed the evolution of our programs and remains a driving priority.
The following degrees are offered:

- Doctor of Philosophy
  - Animal Science
  - Animal Breeding
  - Physiology of Reproduction
- Master of Science
  - Animal Science
  - Animal Breeding
  - Physiology of Reproduction
- Master of Agriculture
  - Animal Science
- Master of Equine Industry Management
- Bachelor Science
  - Animal Science

The chart below indicates the number of degrees the Department has awarded during the last five years.

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**REVISING THE UNDERGRADUATE CURRICULUM**

The training of competent future animal science researchers, producers, educators, and leaders is essential to discover and disseminate new knowledge, information, and technologies that sustain animal agriculture production systems to meet world animal protein demands in 2050. A comprehensive, multidisciplinary, competency-based curriculum is the cornerstone of the Texas A&M University Department of Animal Science goal to develop and educate future cohorts of trained animal scientists who are well equipped to address national and international challenges facing animal agriculture.

Currently, Animal Science is a popular undergraduate major. Nationally, undergraduate enrollments in animal science disciplines (e.g., general animal science; animal breeding, health, and nutrition; dairy science; food animal management; and poultry science) have steadily increased since 1987. In addition, there is a shift in the demographics of the student population, with the majority of bachelor’s students being female. In addition, there is an increase in urban students, a reduction in the number of students with the intent to return to a family farm and more students intending to apply to veterinary school. This trend is evident in our Department, where our students are less interested in enrolling in traditional animal science disciplines and more captivated by disciplines such as companion and exotic animals and horses, animal behavior, animal ethics, contemporary issues, biotechnology, and molecular biology. Therefore, our Department initiated the review and revision of the curriculum that recognizes that many of our current students may also require different types of introductory courses (e.g., basic animal handling courses) than
previous animal science students. Additionally, the number of students in our major with an interest in veterinary medicine would benefit from courses on animal health and the human–animal interaction.

Our new undergraduate curriculum seeks to address the complexity of food animal production. Our curriculum has embedded student learning outcomes beyond agricultural production knowledge to include biotechnology, animal well-being, environmental pollution, international trade, hunger and poverty, social justice, and other issues. Critical-thinking skills are addressed in our curriculum, training our students to ask questions and challenge them to learn how the scientific method contributes to solving complex and global issues. For this to occur, students must use their knowledge and skills to address real-world situations, which is accomplished within our new ‘capstone’ course. Additionally, providing unique high impact learning experiences for our students (e.g., undergraduate student research, enhanced internship opportunities, study abroad, and other experiential learning opportunities) is an effective way to identify and develop future animal scientists. Even if students do not wish to seek a graduate degree, this experience is valuable to develop science literacy, which is applicable across the discipline.

To effectively implement the introduction of our new curriculum, we have recently hired new highly-skilled teaching faculty. Teaching is a complex system integrating the instructor, the students and the subject matter. These elements collectively have multiple interactions and a greater influence on learning outcomes than any single component. Our curriculum seeks to engage students in 'capstone' experiences that build on previous high impact learning experiences to serve the needs of our diverse undergraduate population. It is imperative that we add high-caliber faculty to aid in implementing our curriculum faculty must be willing to continually strive to improve the design of their classes by implementing our student learning outcomes, modes of assessment and developing new instructional activities for enhanced student learning.

The Department of Animal Science Undergraduate Task Force has worked diligently to develop a new undergraduate curriculum. This effort has included input from experts in the Texas A&M University Center for Teaching Excellence, our Department faculty and our Animal Science External Advisory Committee. The new curriculum was approved by University administration in June 2017 and implemented in the Fall of 2018.

Our curriculum identifies key student learning outcomes, modes of assessment and required courses for both our production/industry and science options. Key components are the inclusion of an introductory seminar course, senior level capstone course, implementation of student learning outcomes throughout all required animal courses with accompanying assessments, development of additional disciplinary focus courses and standardized course syllabi. Additionally, we are also developing a strategic distance education plan to provide knowledge and training to non-majors and interested stakeholders, whether located on campus or around the globe.
Mission, Strategic Plan, Goals

MISSION OF THE DEPARTMENT OF ANIMAL SCIENCE
The mission of the Department of Animal Science is to improve lives through discovery, integration, dissemination and application of science-based knowledge of animals and animal products.

AREAS OF EXCELLENCE TO SUPPORT THE MISSION OF THE DEPARTMENT OF ANIMAL SCIENCE
Areas of Excellence have been identified and developed to more effectively fulfill the mission of the Department of Animal Science. The goals for these Areas of Excellence are to provide focused areas of scholarship within the Department for which we may be or will become a national and international leader. The Areas of Excellence align with the missions of both the Department and College, as well as the strategic pillars of the University: (1) Transformational Education for all students, (2) Discovery and Innovation for the world, (3) Impact on the state, the nation and the world.

DEPARTMENT OF ANIMAL SCIENCE AREAS OF EXCELLENCE:
- Cattle Adapted to Tropical and Subtropical Environments
- Pregnancy and Developmental Programming
- Safety, Quality, and Nutrition of Food Products
- Student and Stakeholder Engagement in Animal Science
- Quantifiable Animal Performance

Figure 3.1 The mission of the Department of Animal Science provides a foundation from which the five departmental Areas of Excellence arise and by doing so, align and support the mission of the College of Agriculture and Life Sciences.
CATTLE ADAPTED TO TROPICAL AND SUBTROPICAL ENVIRONMENTS
Approximately 70% of the increase in beef production required to meet growing demand is expected from subtropical/tropical regions of the planet (FAO, 2009), including southern US, Mexico, Central/South American, Africa, Asia and Oceania. These regions contain ~70% of the world’s cattle population, predominately Bos indicus-influenced breeds with diets based on forages and agricultural byproducts; however, most of these cattle are managed on strategies developed and recommended in B. taurus cattle. Bos indicus and B. taurus are two individual subspecies and differ in several body functions related to beef production, including reproductive physiology, nutritional requirements, social behavior, digestive system, and body composition. Hence, a fundamental step to meet the increasing global demand for protein while addressing environmental stewardship is to characterize these physiological, social and nutrient requirement differences. Such knowledge will lead to development and dissemination of management practices tailored to optimize production efficiency of B. indicus-influenced cattle reared in subtropical/tropical environments and will impact the state, nation and world.

Our goal is to be the world leader in beef production, genetics, management, and products. Our vision is to provide unparalleled leadership, best practices, research, support, and training to beef industries worldwide, particularly those based in subtropical/tropical environments. This specialty will help us enhance beef production through excellence in developing and disseminating genetics, management, and product-related technologies to producers, students, industry professionals, and the public.

Building Blocks of our Efforts:
Research: Advancements in understanding physiology and genetics will increase production through enhanced knowledge of reproductive efficiency, genetic improvement, nutritional management, and immunological function. Additionally, the impacts of these factors upon nutrition, palatability, yield, safety and consumption of beef are significant areas of investigation.

Teaching: Balanced undergraduate and graduate curriculum with emphasis on globalization. Programs including capstone, internships, study abroad, international travel, scientific collaboration and industry involvement will facilitate student development and employment opportunities. All providing opportunities for transformational education.

Extension: Two signature programs, the Beef Cattle Short Course (largest beef cattle Extension program in the U.S.) and the International Beef Cattle Academy (IBCA), are housed within the Department of Animal Science and offer stakeholders unprecedented access to unique educational opportunities. The 2017 Texas A&M Beef Cattle Short Course had an economic benefit of $2.2 million for ranches in attendance. The educational mission of the IBCA is to advance the knowledge of global beef production by exposing students to emerging technologies in cattle reproduction, nutrition, genetics, health, and welfare pertaining to all phases of beef production, as well as quality and safety of beef and its products.
PREGNANCY AND DEVELOPMENTAL PROGRAMMING

Increased understanding of animal reproduction at molecular, cellular, and whole animal levels is critical for improving production efficiency in animal agriculture as well as enhancing human health. Independent of the species, if a pregnancy doesn’t establish and successfully result in live offspring, the species is not sustainable. Additionally, a broader understanding of the impact of suboptimal environmental exposure during pregnancy or early postnatal life suggests that reproductive success is a lifelong measurement of an animal’s performance, in addition to historically calculated pre- and early post-natal morbidity and mortality. Developmental programming touches every aspect of physiology and therefore impacts all areas of livestock production, including: 1) reproductive outcomes; 2) immune function; 3) growth, metabolism, and efficiency; 3) stress response; 4) behavior; and more. This concept is not new; however, the mechanistic basis of this process has recently come to the forefront. Thus, pregnancy and developmental programming of both livestock and humans have taken on increased levels of importance. Nutrition, stress and environmental contaminants all play roles in programming gene expression in the developing conceptus. Discovery and innovation in this Area of Excellence will allow for the generation of foundational knowledge and development of applied technologies and strategies that will positively impact the state, the nation, and the world.

Our goal is to be the world leader in pregnancy and developmental programming of livestock. Our vision is to enhance reproductive efficiencies and outcomes via increased understanding of mechanisms supporting embryonic survival, relationships between intrauterine nutrition, immune function, neonatal survival, and improved utilization of nutrients in livestock species and laboratory animals, as well as pre- and post-pubertal development and functionality.

Building Blocks of our Efforts:
Research: The Department of Animal Science is home to a critical mass of faculty with established records of collaboration and who have yielded significant extramural funding, publications, industry impacts, and global recognition. Their programs have been particularly effective at integration of scholarship in disciplines of agricultural sciences, biomedical sciences, veterinary sciences, engineering, bioinformatics, business, social sciences and the humanities.

Teaching: The opportunity for students to pursue graduate degrees in Physiology of Reproduction is an important recruiting tool. Faculty membership in the Interdisciplinary Faculty of Reproductive Biology (University Level) provides further opportunities for students to engage with visitors to the seminar series as well as interact with their peers from additional departments. Undergraduates have the opportunity to pursue training in reproductive biology courses with interactive laboratories as well as participate in laboratory research projects with faculty.

Extension: The dissemination of findings and translation of basic research into industry applications and protocols is a hallmark of this area. The involvement of research programs, as well as the level of engagement with stakeholders through events such as conferences and field days provide additional opportunities for stakeholder engagement.
SAFETY, QUALITY AND NUTRITION OF FOOD PRODUCTS

Food product safety, quality, and nutrition are intrinsically linked and address a foundational need in society. Consumer attitudes toward consumption of food products (fresh or processed) are critical to marketing success and may be formed based on product safety, quality and nutritional value. Losing market shares would impact producers, processors, retailers, and the consumer. According to a 2016 study commissioned by the North American Meat Institute (http://meatfuelsamerica.guerrillaeconomics.net), companies in Texas that are directly involved in producing meat, poultry, and related products employ 146,464 people (1.87 million nationally) and an additional 354,960 jobs (3.54 million nationally) in related industries. Additionally, the manufacture and sale of meat, poultry, and related products generated an estimated $87.39 billion in economic activity in Texas ($1.02 trillion nationally). The scope and utilization of research findings and outreach activities in this area are tremendous.

Examples include but are not limited to: USDA’s Nutrient Database updates, National Beef Quality Audit, Meat Science Lexicon development, establishment of a searchable validation database for food safety, determination of antimicrobial efficacy, and contributions to the Research Guidelines for Cookery, Sensory Evaluation, and Instrumental Tenderness Measurements of Meat. Efforts have also reduced food wastage due to spoilage, disease-related losses in animal production, and the burden on the human healthcare system caused by chronic and acute conditions.

Our **goal** is to be the world leader in the Safety, Quality, and Nutrition of Food Products. Our **vision** is to provide leadership in research, support, and training in food safety, quality and nutrition as well as the relationship between these areas. This will help us enhance the quality of life for a global population through excellence in developing and disseminating information and technologies to students, industry professionals, and the public.

**Building Blocks of our Efforts:**

*Research:* Efforts span production through processing, distribution and preparation and includes the largest critical mass of meat science faculty in the U.S. who are renowned experts in the areas of sensory and flavor chemistry, fatty acid biochemistry, fresh meat quality, and food safety including antimicrobial applications and phage technology. This expertise is the basis for collaborations on university, national, and global scales.

*Teaching:* Our students have access to more meat science and food safety courses than at any other U.S. university, as well as certificates in Meat Science and Food Safety. They also have significant opportunities to participate in judging teams, internships and research projects.

*Extension:* Our specialists possess the overarching expertise and ability to reach stakeholders at all levels of the conversion of animal products to consumer acceptable, safe, and nutritious food. These programs incorporate research innovation and transformational education to impact their audiences, which include individuals from across the state, nation and the world. Most of our Extension programs such as Beef 706, Beef 101, Pork 101, Camp Brisket and Barbecue Camp are in high demand and frequently sell out – sometimes in just minutes.
STUDENT AND STAKEHOLDER ENGAGEMENT IN ANIMAL SCIENCE

The Department of Animal Science is one of the largest of its kind, with approximately 1,250 undergraduate students, 130 graduate students, and 60 faculty members. The quality of education provided, including knowledge and skill development, is significantly influenced by student and stakeholder engagement and is not limited to a classroom environment. Efforts in this Area of Excellence are based on aligning the student educational experience with industry needs, as well as enhancing public perception and understanding of animal science. We are committed to providing transformational education for all students. Examples include but are not limited to: implementation of a data-driven undergraduate curriculum revision, increased independent graduate student research and teaching opportunities, development and expansion of online learning programs, study abroad experiences, competing on or coaching competitive teams, participation in government and/or industry-supported internships, as well as efforts in interdisciplinary and multi-investigator driven research, teaching and Extension projects. In addition to producer and consumer-focused engagement experiences, such as the Beef Cattle Short Course, IBCA, and Camps Brisket and Barbecue, there is also an annual focus on youth programs including: livestock and judging camps (700 future students), judging contests (3,000 future students), as well as stock shows including skillathons and science fairs (700 future students). Alignment of opportunities with industry and public priorities is facilitated via feedback from an External Advisory Council, former students, industry leaders, and program participants.

Our goal is to serve as a global leader in practices of student and stakeholder engagement in animal science. Our vision is to enhance the educational experience, appreciation of animal agriculture, create industry advocates, and improve consumer understanding of animal science. This specialization will improve the knowledge, skills and competency of our students and stakeholders including producers, industry professionals, and the general public.

Building Blocks of our Efforts:

Research: The Department is well suited to increase focus on discovery and innovation in the areas of pedagogy, student and stakeholder perceptions, high impact learning programs, and international exposure and collaborations. This will enable our Department to impact not only our students, but also individuals across the state, nation, and world.

Teaching: Opportunities for transformational education are provided through both traditional and novel mechanisms to current students as well as individuals outside the discipline. Educational opportunities are also provided by varied training programs at the undergraduate and graduate levels, including pursuits of traditional degrees as well as certificates of specialization.

Extension: Large-scale and highly-successful programs focus on youth experiences, producer education, equine and livestock education/advocacy, stock shows exhibits, professional development and public perceptions are hallmarks of the Department and exist at the state, national and international levels.
QUANTIFIABLE ANIMAL PERFORMANCE

Animals are biological transformers of low-quality feedstuffs (e.g., forages and grain byproducts) into high-quality foods (e.g., meats and milk) for human consumption, as well as raw materials such as wool and leather for clothing and accessories. In addition, some livestock (e.g., horses) are used for transportation and/or recreation. Thus, animal agriculture plays an important role in improving human nutrition, growth, development, and health, as well as economic and social developments worldwide. Discovery and innovation in quantifiable animal performance are critical for assessment of animal production and value. Recognizing that this area both influences and is influenced by a variety of social and environmental factors, it is necessary to develop models for evaluation of relationships and impacts. Potential applications include: (1) preclinical detection and mitigation of disease, (2) monitoring and management of animal and animal handler welfare, (3) precision nutrition, (4) productivity and efficiency of feed use, (5) antimicrobial replacements, (vi) rates of carbon dioxide and methane emissions per unit of output, (vii) early detection of metabolic diseases and lameness, (viii) muscular endurance and athletic capability, (ix) detection of onset of parturition and estrus, (x) optimized feed delivery in confinement situations, (xi) evaluation of forage quality and monitoring of stocking rate in grazing animals, (xii) support of individual-animal management systems, and (xiii) development of biosurveillance networks to mitigate potential emerging-disease threats.

Our **goal** is to serve as a world leader in quantifiable animal performance. Our **vision** is to create and utilize novel models and critical metrics for evaluation and assessment of animal performance across species and disciplines. This specialty will enhance livestock and equine industries through developing and disseminating information and strategies for optimization of animal performance to students, producers, industry professionals, and the public.

Building Blocks of our Efforts:

*Research:* Providing subject matter expertise within quantifiable animal performance will improve efficiency and value associated with animals, animal products, and the animal science industry. Application of developed models and metrics will generate data to help inform both public and industry perception and policy regarding the previously-mentioned applications.

*Teaching:* Knowledge and application of empirical and quantitative skills are University-level learning outcomes and are addressed in both undergraduate and graduate courses within the Department. Further, the revised curriculum includes both capstone and internship requirements providing undergraduates increased opportunities for industry engagement. Departmental mini-grants for graduate research projects provide additional opportunities for graduate students to gain independence in research project design.

*Extension:* The translation and dissemination of outcomes within areas of quantifiable animal performance impact stakeholders within our state, nation and the world. Application of findings offers potential for increased efficiency of management and production, as well as improved, data-driven communication with consumers.
PLANNING PROCESS USED TO DEVELOP AREAS OF EXCELLENCE

Multiple factors were taken into consideration in selection and refinement of the Department of Animal Science, Areas of Excellence. It was determined that an Area of Excellence:

- Should consider all three legs of the Land-Grant System (i.e., teaching, research, and Extension).
- Should go beyond the boundaries of a state or even a country.
- Should change lives, promote awareness and be able to endure.
- Should encompass faculty from two or more disciplines.
- May represent something that our Department is doing well, but should focus on what we need to be great at 10 to 15 years from now.
- May be species specific, but multispecies considerations would be more desirable.
- Should improve lives of Texans and beyond through animal agriculture.

It was further determined that Areas of Excellence will include appreciation for:

- Basic research
- Applied research
- Scholarship of teaching and learning
- Extension
- Global relevance
- Societal and/or political implications
- COALS/AgriLife and University Strategic Planning Pillars

Alignment with COALS/AgriLife Strategic Planning Pillars, which are:

- Profitable/innovative agriculture and nutrition
- Precision agriculture and nutrition
- Policy associated with agriculture, product safety and nutrition

Alignment with University Strategic Planning Pillars, which are:

- Transformational education for all students
- Discovery and innovation for the world
- Impact on the state, the nation, and the world

Departmental process for creation and refinement of Areas of Excellence:

- Department Advisory Council suggestions
- Pre-departmental retreat faculty surveys
- Departmental retreat with facilitator
- Post-departmental retreat faculty surveys
- Faculty Advisory Committee review of data and generation of summary areas
- Faculty meetings to review proposed Areas of Excellence
- Finalization of Areas of Excellence and Presentation to the Dean of the College
- Submission of Areas of Excellence content by individual faculty
RESOURCES REQUIRED TO REACH EXCELLENCE

Serving as a world leader in each of the designated Areas of Excellence requires access to a world-leading infrastructure. Progress is presently hindered by either a lack of facilities and/or a loss of utility of existing facilities due to age, size and deferred maintenance. The breadth and experience of current personnel are strengths of the Department. However, potential faculty retirements, reduction in staff and graduate student numbers, increasing stakeholder demands, and the need for specific expertise not presently within the Department pose future challenges to achieving departmental goals. Finally, an organized and clearly communicated plan for efficient utilization of resources, including financial, physical and intellectual is also critical and will serve as a foundation for continued success and development of departmental efforts.

Facilities:

- Appropriate classroom and laboratory activity space at all facilities, with IT capabilities
- Maintenance and improvements to Kleberg Center to include:
  - Molecular biology core laboratory to include IVF, transgenics, and gene editing
  - Sensory and flavor chemistry laboratory update
  - General laboratory repair, including removal of nonoperational fume hoods
- A replacement for the Rosenthal Meat Science and Technology Center to include:
  - BL2 or BL3 processing facility and updated micro labs
  - Dedicated teaching space to allow industry programs to run throughout the semester
  - Food chemistry, processing, and packaging research and teaching space
  - Harvesting and processing of animal products
- A replacement for Pearce Pavilion to include:
  - Arena and livestock housing space capable of hosting Extension and youth programs
  - Dedicated teaching space with classroom and laboratory
  - Departmental Welcome Center for visitors
- Improvement/expansion/replacements at ASTREC-PFL to include:
  - Dedicated beef cattle teaching barn complete with classroom and laboratory
  - Large animal respiratory chambers and nutrition/feed evaluation equipment
  - Small ruminant individual feeding barn
  - Large-scale facilities for sensory technology data acquisition and storage
- Freeman Arena:
  - Specified Equine Quarantine Area
  - Security – tack room and pasture lighting

Personnel:

- Faculty with expertise in epigenetics/epigenomics, molecular genetics, functional genomics
- Faculty with expertise in transgenics, ovarian biology
- Faculty with expertise in bioinformatics, big-data, modeling
- Faculty with expertise in further processing, value-added, packaging, consumer acceptance, risk modeling
- Faculty with expertise in fermentation biology, food microbiology
- Faculty with expertise in beef cattle forage, plant-animal interface
- Extension specialists in beef cattle, animal welfare
- Undergraduate recruiter, judging team coordinator
Administrative Structure

CURRENT STRUCTURE AND ORGANIZATION OF THE DEPARTMENT
The mission of the Department of Animal Science is to improve lives through discovery, integration, dissemination and application of science-based knowledge of animals and animal products.

AREAS OF EXCELLENCE TO SUPPORT THE MISSION OF THE DEPARTMENT OF ANIMAL SCIENCE
Philosophically, the Department of Animal Science is structured as shown in Figure 3.2. Undergraduate students, graduate students, and internal and external stakeholders are our primary clientele, and thus all efforts of the Department are intended to support their needs through the integration of teaching, research, and Extension programs. The inclusion of these groups reflects the Department's belief that the programs implemented in pursuit of these missions are integrated, not independent. Ultimately, all former students become stakeholders in our ongoing mission to educate through dissemination and application of science-based knowledge of animals and animal products. In addition, many stakeholders are clientele who may not have been undergraduate or graduate students, but rely on our resources to have an impact on their lives. From this vantage point, the efforts of faculty directly support our clientele; the efforts of staff are designed to facilitate the efforts of faculty; and the administrative structure provides a foundation of support for the achievement of staff, faculty, students, and stakeholders.

Figure 3.2 Department of Animal Science Philosophic Organizational Structure.
More classically, the Department is administratively organized as shown in Figure 3.3. The **Department Head** provides leadership and facilitates administrative support toward the achievement of the Department's mission. Specifically, the role of the Department Head is to:

- Facilitate the development and implementation of the Department’s vision, goals and action steps that encompass teaching, research and Extension.
- Support the development, evaluation and enhancement of undergraduate and graduate programs, including distance education.
- Develop and administer budgets for the Department’s programs.
- Identify and acquire funding for Departmental programs, facilities and initiatives.
- Facilitate recruitment and retention of exceptional faculty and staff.
- Provide administrative leadership for faculty and staff with attention to professional development and evaluation.
- Foster a commitment to enhanced international activities in research, training, development, Extension and study abroad.
- Seek opportunities for gifts, donations, etc.
- Foster interdisciplinary collaborations with appropriate departments and programs within the University and other institutions.
- Maintain an open and inclusive climate within the Department.
- Create an environment that fosters and encourages diversity, collegiality and ability to work in a multicultural setting.
- Maintain strong relations with College, University and System leadership as relates to Department programs and activities.
- Develop and maintain strong relations with state and national stakeholders.
- Ensure compliance with state and federal regulations.
- Promote and encourage strong linkages with faculty and programs at statewide Texas A&M AgriLife Research and Extension Centers.

The **Associate Head for Extension**:

- Serves as a communications conduit between the Texas A&M AgriLife Extension Associate Director for State Operations and the Department’s Extension faculty.
- Manages the budget for the Animal Science Extension Unit.
- Provides leadership to statewide focus on programming efforts.
- Works with the Department Head to recruit and hire Extension Specialists.
- Conducts annual performance reviews and establishes goals for success in professional development for all Extension faculty; assists faculty in developing annual Plans of Work related to support of County programs and Specialist-led programming efforts.
- Collects programming evaluation and impact information and provides such to the Associate Director for State Operations.
- Develops the Impact Statements for the annual summary and Federal Plan of Work as it relates to livestock-related programming efforts by Texas A&M AgriLife Extension.

The **Associate Department Head for Compliance** has responsibilities that include:

- Provides independent leadership in working with the Department Head to establish and maintain compliance with governmental and System regulations to ensure successful implementation of research, teaching, and Extension compliance of all Department of Animal Science units.
- Works closely with the Manager of Livestock Operations to evaluate compliance with Department, College, University, and System regulations.
- Serves as a Department liaison for animal use compliance for multiple University and System entities.
- Provides strategic support to Head of the Department of Animal Science.
The **Associate Department Head for Academic Programs** responsibilities include:

- Administration of the undergraduate and graduate instructional programs in the Department, which involves working with faculty and staff throughout the College of Agriculture and Life Sciences, Texas A&M AgriLife Research and Texas A&M AgriLife Extension.
- Maintenance of excellence in the undergraduate and graduate programs and the ability to work effectively with and represent faculty to University and Agency administrators, staff and federal agency personnel and industry clientele will be priorities.
- Recruiting, admission, and advising of graduate students and the coordination of administrative processes associated with the graduate education mission.
- Scheduling of courses and instructors along with coordination of the graduate curriculum and integration with the undergraduate curriculum.

The **Assistant Department Head for Undergraduate Programs** responsibilities include:

- Supports the Associate Department Head for Academic Programs by assisting with coordinating undergraduate student recruiting efforts.
- Provides leadership for undergraduate scholarships.
- Serves as the Department coordinator for judging teams.
- Serves as the Department contact for Department High Impact Programs.

![Figure 3.3 Administrative organization of the Department of Animal Science.](image-url)
Figure 3.4 Administrative organization of the Department of Animal Science.
The previous and long-standing structure of departmental “sections” was eliminated in 2018 to remove perceived barriers and advocate for greater interdisciplinary relationships among our faculty. Additionally, a Faculty Advisory Committee was established to promote faculty involvement in Department decisions. Members serve one- and two-year terms and are charged with providing input to the Department Head on Departmental initiatives and issues.

STANDING DEPARTMENTAL COMMITTEES

Undergraduate Curriculum
- Tryon Wickersham (Chair)
- Katie Dunlap
- Andy Herring
- Shawn Ramsey
- Thomas Welsh
- Joe Paschal

Charges:
1. Organize formal review of undergraduate curriculum with the TAMU Center for Teaching Excellence
2. Ensure that Weave Assessment goals align seamlessly with existing undergraduate curriculum
3. Provide recommendations to faculty for improvements in curriculum

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.

Graduate Curriculum
- Fuller Bazer (Chair)
- Kerri Gehring
- Jason Gill
- Carey Satterfield
- Steve Smith
- Matt Taylor
- Luis Tedeschi

Charges:
1. Organize formal review of graduate curriculum with the TAMU Center for Teaching Excellence
2. Ensure that Weave Assessment goals align seamlessly with existing graduate curriculum
3. Provide recommendations to faculty for improvements in curriculum

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.

Faculty Advisory Committee
- Chris Kerth (Chair)
- Jason Gill
- Andy Herring
- Jenny Jennings
- Ky Pohler
- Carey Satterfield
- Tryon Wickersham
- Jennifer Zoller
Charges:
1. Provide guidance regarding refilling of vacant positions
2. Provide guidance on development of new positions
3. Provide guidance on implementing strategic planning initiatives

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.

Promotion and Tenure
- Steve Smith (Chair)
- All faculty of necessary rank and tenure status

Charges:
1. Review promotion and tenure, mid-term (3 year), post-tenure and emeritus dossiers and provide recommendations to the department head.
2. Review and revise promotion and tenure guidelines as necessary to conform to university and college rules and regulations.

Awards
- Kerri Gehring (Co-Chair)
- Tom Welsh (Co-Chair)
- Amy Carwile
- Clare Gill
- Dan Hale
- Andy Herring
- Shawn Ramsey
- Steve Smith
- Matt Taylor

Charges:
1. Identify opportunities for nominating ANSC faculty, staff, and students for awards:
   a. College and Agency-level awards
   b. University-level awards
   c. Professional society/association awards
2. Work directly with ANSC faculty, staff, and students to prepare nominations

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.
Social

- Maggie Berger (Co-Chair)
- Jennifer Houston (Co-Chair)
- Ashley Arnold
- Rodolfo Cardoso
- Haley Collins
- Flavia Cooke
- Keaton Dodd
- Leslie Frenzel
- Davey Griffin
- Nicky Oosthuizen
- Shawn Ramsey
- Ray Riley
- James Sanders
- Jeff Savell
- Tryon Wickersham

Charges (September 1, 2017):
1. Organize and make recommendations for conducting ANSC social events, such as the Holiday dinner, Judging Team Reunion, Department tailgate, and Awards Banquet
2. Work directly with ANSC faculty, staff, and students to implement events

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.

Climate

- Steve Smith (Chair)
- Jason Cleere
- Katie Dunlap
- Pedro Fontes
- Justin Leavitt
- Rachel Park
- Donna Witt

Charges (September 1, 2017):
1. To consult ANSC Climate Plan for specific details on near-term and longer-term goals and activities.

Note: The chair or designated committee member should be prepared to report on committee activities at faculty meetings.
Degree Program Appendices: Facilities

KLEBERG ANIMAL AND FOOD SCIENCES CENTER
The Kleberg Animal and Food Sciences Center is a five-story building that houses faculty, staff and students in the Department of Animal Science as well as the Departments of Ecosystems Science and Management and Poultry Science. It is equipped with laboratories, office spaces, lecture facilities, classrooms, conference rooms, and student study areas. The building was dedicated in 1978 in honor of Robert Kleberg, Jr. of the King Ranch, creator of the Santa Gertrudis breed of cattle and master horse breeder.

Kleberg classrooms are each set up with computers and the capability to use a personal laptop, LCD projectors, and some document projectors. The Kleberg Center features two large lecture rooms that can accommodate up to 300 students and 150 students, respectively. Each of the two lecture rooms feature cushioned, theatre-style seating and carpeted flooring. The first floor also includes four additional classrooms, with seating varying from 60 to 98 students. Additionally, the Department controls four conference rooms for hosting seminar presentations, small group meetings, and other activities. The Faculty Lounge is also located on the first floor and with its executive boardroom format is ideal for seminar presentations and meetings up to 40 people. The basement includes teaching laboratories as well as research laboratories, seminar and classroom space.

The upper floors of the Center house faculty, staff and graduate student office space and also support of the Department's laboratory research projects.

Students have access to the Department of Animal Science computer lab, which includes 20 HP computers and a printer. This lab is open to students from 7:00 a.m. to 5:00 p.m. and gives students access to a variety of computer programs.

The Kleberg Center serves a variety of audiences and supports all teaching, Extension, and research programs. It is often used by local, regional and national groups for conferences, meetings, seminars, and other educational activities.

O.D. BUTLER, JR. ANIMAL SCIENCE TEACHING, RESEARCH, AND EXTENSION COMPLEX (ASTREC)
The ASTREC Complex was dedicated in 1997 and is a 580-acre compound devoted to teaching, research, and Extension in animal science. The facility is located six miles west of the Kleberg Center on Highway 60, along the banks of the Brazos River between College Station and Snook, Texas. It is home to the Beef Center, Thomsen Center for Animal Studies, Swine Center, Sheep and Goat Center, Nutrition and Physiology Center and the G. Rollie White Visitors Center, as well as shop facilities and a Feed Services Unit.

BEEF CENTER
The Texas A&M Beef Center encompasses 350 acres of ASTREC and includes a central building, feed storage facility, and shop and equipment storage.

The central building is the main area of the Center and houses the Beef Center Manager. Its auditorium serves as a theatre-style teaching and public event facility that accommodates up to 200 people, and includes a raised stage, podium and scale for live animal demonstrations. The auditorium is equipped with a projection screen and is suitable for audiovisual presentations. The air-conditioned facility also includes a cattle sale ring, restrooms, and a kitchen service area to support catered events. A small conference room is also available, which is suitable for small meetings.
An outside covered area is designed for cattle holding and handling and includes space for teaching activities such as artificial insemination, pregnancy determination, live animal evaluation, and animal health and behavior demonstrations. The outdoor area also includes restrooms, an animal wash area, feed and tack storage, and a small laboratory area. Panel pens for holding and feeding provide for individual access to cattle. Lanes allow access to outside corrals and holding pens.

THOMSEN CENTER FOR ANIMAL STUDIES
The Thomsen Center for Animal Studies opened in 1998 and is used in animal behavior and welfare research. The Thomsen Center has a 2,000 sq. ft. barn used for housing pigs, cattle, sheep, and other animals.

SWINE CENTER
The Swine Center consists of a small, 10 sow farrowing and nursery facility. It is located at the ASTREC facility and supports teaching and research programs. Space for growing and finishing swine is available in one of the barns associated with the Nutrition & Physiology Center (see below).

SHEEP AND GOAT CENTER
The Sheep and Goat Center offers students hands-on learning opportunities to develop skills in sheep and goat production, management, and marketing. With a strong history of success, the Sheep and Goat program provides students and stakeholders with cutting-edge information about sheep and goats through our teaching, research and Extension functions.

The Sheep and Goat Center includes restrooms, a reception/office area that houses student workers and an office for the Sheep Center Manager. An inside, climate-controlled laboratory allows for activities such as semen collection and evaluation, wool and mohair evaluation, and ultrasounding. The lab also features a semen storage area. Outside pens include fenced, outdoor runs for sheep and goats, as well as a working pen facility that allows for hand-on learning.

NUTRITION AND PHYSIOLOGY CENTER
The Nutrition and Physiology Center (NPC) accommodates state-of-the-art instrumentation/facilities for intensive study, monitoring and manipulation of the biological processes regulating development, growth, reproduction, nutrient utilization and resistance to disease in domestic livestock important to man. The Center also provides the most up-to-date facilities for training students in using current research procedures in biotechnology.

The NPC is located on approximately 45 acres of ASTREC and includes a large animal main laboratory building, individual animal feeding/handling facilities, group animal management areas, and a diet storage/handling facility. In addition, the NPC contains a BSL2 surgery suite and dedicated necropsy space.

Individual animal feeding and handling areas support individual feeding/growth trials conducted in parallel with intensive physiological studies involving cattle and sheep. The facilities also provide needed equipment for processing and for short-term holding of animals in preparation for more intensive studies in the main laboratory facility.

The group animal management area includes pasture facilities for feeding and/or growth of animals (cattle) not requiring the degree of attention as those in the individual handling area, and for receiving and holding animals prior to, and between, investigations.

The diet storage and handling area provides key ingredients and a preparation site for diets fed to animals maintained in the laboratory, individual pens, and group management areas.
FEED SERVICES
The Feed Services Unit consists of a feed storage facility that includes a 4,000 sq. ft. feed storage building with four inside feed storage bins and six outside storage bins. Additional storage is being added (new bins) to increase storage capacity by approximately 40 tons. A 4,500 sq. ft. shop and equipment storage building contains parts/equipment storage areas and an office.

In conjunction with storage and manufacturing capacity at the Nutrition and Physiology Center, this facility serves as a supporting unit, sourcing ingredients and manufacturing TMR diets for projects conducted at other departmental facilities.

G. ROLLIE WHITE VISITOR CENTER
The G. Rollie White Visitor Center serves as main headquarters for ASTREC. The building is home to the administrative offices of ASTREC staff and serves as a location for conferences, meetings, Extension programs, social functions, and many other activities. The G. Rollie White Visitor Center was dedicated in 1997 and includes a spacious meeting room area, which can comfortably hold up to 100 visitors, a kitchen area, and small conference room area. It is nestled among the beautiful shaded tree area of the Complex and easily accommodates outdoor functions as well.

PHYSIOLOGY FIELD LABORATORY
The Physiology Field Laboratory is located in Burleson County, approximately 11 miles from the Kleberg Center. This facility is designed to house small ruminants, primarily sheep, in support of active research programs in reproductive and nutritional physiology. The facility consists of approximately 350 acres of improved pastures, of which 120 are irrigated, a paddock system for staging and housing animals, a covered handling facility and a semi-enclosed barn used for controlled feeding and breeding. The facility is capable of housing up to 1,000 ewes.

BEEF CATTLE SYSTEMS RESEARCH UNIT
The Beef Cattle Systems Research Unit is located adjacent to the Physiology Field Laboratory and accommodates larger scale receiving/preconditioning, confinement growing, and grazing studies with growing cattle. A resident brood cow herd was established to supplement the cattle resource of the Beef Center, and GrowSafe® feeding technology (120 head capacity) is in place to allow next-generation individual animal characterization of feed intake, behavior and growth responses.

THOMAS G. HILDEBRAND, DVM '56 EQUINE COMPLEX
The Thomas G. Hildebrand, DVM '56 Equine Complex was opened in 2014 and provides the home for the Texas A&M University NCAA Women's Equestrian Team. Current equine facilities include four arenas, a 52-stall barn, pastures, locker rooms, concessions, and coaches' offices for the Women's Equestrian Team. The arenas support other program needs when available. The Complex also has Education and Outreach buildings which support teaching and outreach initiatives for numerous departments across campus. The Wagonhound Land and Livestock Building has three classrooms and office space for graduate students. The Outreach building houses the Texas A&M Equine Initiative, event offices, and facility management offices. The building is a multipurpose facility and is used for trainings, seminars, graduations, banquets, and weddings. Additionally, the Dale Watts cross-country course is utilized by the Texas A&M Track & Field team to train and host meets at the local, state, national and international levels.

Construction is underway on the Equine Nutrition Research and Reproductive Teaching facility that is replacing the Horse Center previously located on George Bush Drive and is expected to be complete in Spring 2019. As part of the facilities at the College of Veterinary Medicine & Biomedical Sciences, a new Equine Lameness and Rehabilitation Clinic is in the early planning stages. Additional construction projects will include a new multipurpose teaching arena and a Mare and Stallion Reproductive Research facility.
**DICK FREEMAN ARENA**
Freeman Arena is a 200 x 350 ft. covered arena devoted to equine teaching, research, and Extension programs.

The entire tract of land was approved by the Board of Regents for development into an Equestrian Center in the early 1970s. The Arena was established in 1977, and bleachers and roofing were added in 1985.

The Arena was named for and formally dedicated to Mr. N.W. “Dick” Freeman, a long-time friend and supporter of the Texas A&M equine sciences program and youth horse programs in Texas. Mr. Freeman was a rancher and a businessman as well as president of the Houston Livestock Show and Rodeo. The University continues to use the Arena for undergraduate and graduate classwork in horse training, judging, horse shows, and rodeos.

**MCGREGOR RESEARCH CENTER**
The 6,372 acre McGregor Research Center was established in 1948 as a component of the Texas Agricultural Experiment Station, and was assigned to the Department of Animal Science in 1972. Since that time, this facility has served as a beef cattle research station, providing a platform for long-term, large-scale projects with beef cows, stocker cattle, and confinement growing and finishing cattle.

The McGregor Research Center supports an average cow herd of 900 cows, and the capability to graze 400 to 1,000 stocker calves dependent upon precipitation and season. Confinement-feeding facilities can support up to 600 head in commercial-style, soil-surfaced large pens. A Calan® gate facility with 120 individual gates, arranged in 30 pens of 4 each, and a GrowSafe® bunk system capable of supporting 180 head (one time) are available for detailed data collection.

The facility is located 110 miles from College Station, allowing faculty and students one-day travel to and from the station for data collection and observation.

**PEARCE PAVILION**
The Louis Pearce Pavilion is located on George Bush Drive between Wellborn Road and FM 2818 and used to support teaching and Extension activities, including judging contests, youth camps, clinics, livestock competitions, and other events. This air-conditioned facility features a 100’x200’ indoor arena, seating for over 1,000 and one small classroom, the TAMU Wool and Mohair Evaluation Lab, and outside covered livestock pens.

The main arena is large and versatile in its use. Laboratories, Livestock clinics, judging contests, and shows are held here throughout the year. The arena can be set up with stalls, pens, and show rings and can also be used for working demonstrations and hands-on interaction with livestock.

The wool lab, used by the Texas A&M University Wool Evaluation Team, is located on the west side of the Pavilion. This facility is used by nearly 250 freshmen students enrolled in the Wool and Mohair Evaluation class and also by many local 4-H and FFA members interested in wool and mohair evaluation.

Several open-air livestock pens suitable for hogs, goats, lambs and cattle are located at the back of the building, along with small animal wash rack facilities, and a feed and equipment storage area.

The east side of the Pavilion features armchair seating for 250 and additional bleacher seating for 2,250 people. The west side also features fold-out bleacher seating for 500 and can also be used for dinner functions and tradeshow exhibits.

A small classroom is suitable for approximately 30 students and accommodates a variety of audiovisual equipment including LCD projectors, slide projectors, and VHS videotapes. It is also useful for clinics, meetings, and other small group needs.
ROSENTHAL MEAT SCIENCE AND TECHNOLOGY CENTER
The Rosenthal Meat Science and Technology Center (RMSTC) is the most comprehensive facility of its kind in the U.S.,
devoted to the development of science and the application of that science to the solution of problems in animal and
meat science. The 29,538 sq. ft. facility includes a retail meat sales store, a multispecies harvesting facility including
holding pens, four large meat coolers, three large meat freezers, two processing/fabrication areas, two cutting rooms,
three smokehouses, and a meat packaging area. It is equipped to process all types of meat products including beef,
pork, lamb, cured and smoked products and sausages. It is also used extensively to support the teaching, Extension,
and research functions of the Department of Animal Science and other academic entities at Texas A&M University.

Rosenthal Meat Science Center products are inspected by the Texas Department of State Health Services and are establishment No. 1 by the
Meat Safety Assurance Unit. These officials ensure that meat products are from healthy livestock, clean and sanitary handling procedures are
practiced, and products are wholesome.

The Rosenthal Meat Sales area is a full-service meat retail sales store that features a variety of meat products including beef, pork, lamb,
sausage, beef jerky, ham, bacon, and more. All products are processed at the Rosenthal Meat Science and Technology Center.

Additionally, the Rosenthal Center includes a 148-seat classroom that allows for easy transport of meat products from coolers to the classroom while still on the rail. This ideal setting brings fresh meat products and carcasses into the classroom for optimal hands-on learning. The classroom is also equipped to handle all types of audiovisual equipment. In addition to teaching, the classroom is often used for conferences, seminars, industry clinics, judging contests, and other Extension programs. A small conference room is also available for meetings accommodating 10 people or less.

The Rosenthal Center administrative area includes two office suites that house the Center Manager, graduate
students, and the International HACCP Alliance.

The Center was dedicated in 1987, in honor of E.M. “Manny” Rosenthal, a former student of Texas A&M and chairman
emeritus of Standard Meat Co.
## Degree Program Appendices: Finances

### Table 3.5  Income and Expenditures for teaching, research, and Extension during the 2017 and 2018 Fiscal years.

<table>
<thead>
<tr>
<th></th>
<th>FY2017</th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>$6,439,456</td>
<td>$7,037,560</td>
</tr>
<tr>
<td>Research</td>
<td>$9,346,502</td>
<td>$8,516,876</td>
</tr>
<tr>
<td>Extension</td>
<td>$1,946,661</td>
<td>$2,033,233</td>
</tr>
<tr>
<td><strong>Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>$6,690,886</td>
<td>$6,787,319</td>
</tr>
<tr>
<td>Research</td>
<td>$8,700,896</td>
<td>$8,377,766</td>
</tr>
<tr>
<td>Extension</td>
<td>$1,916,090</td>
<td>$1,998,309</td>
</tr>
<tr>
<td><strong>Appropriated</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>$3,459,818</td>
<td>$3,610,918</td>
</tr>
<tr>
<td>Research</td>
<td>$1,248,801</td>
<td>$1,310,426</td>
</tr>
<tr>
<td>Extension</td>
<td>$1,307,630</td>
<td>$1,322,834</td>
</tr>
</tbody>
</table>

### Table 3.6  Animal Science faculty salary by rank.

<table>
<thead>
<tr>
<th>Rank</th>
<th>FY2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured Professor</td>
<td>$74,888 - $263,118</td>
</tr>
<tr>
<td>Tenured Associate Professor</td>
<td>$81,330 - $130,000</td>
</tr>
<tr>
<td>Tenure-Track Assistant Professor</td>
<td>$77,400 - $100,000</td>
</tr>
<tr>
<td>Academic Professional Track</td>
<td>$50,441 - $73,417</td>
</tr>
</tbody>
</table>

### Table 3.7  Profile of personnel expenditures by funding source.

<table>
<thead>
<tr>
<th>FY2018</th>
<th>Teaching</th>
<th>Research</th>
<th>Extension</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>$3,150,378</td>
<td>$868,668</td>
<td>$1,059,940</td>
<td>$716,487</td>
<td>$5,795,473</td>
</tr>
<tr>
<td>Staff-Budgeted</td>
<td>$472,929</td>
<td>$549,900</td>
<td>$139,244</td>
<td>$703,672</td>
<td>$1,865,746</td>
</tr>
<tr>
<td>Staff-Wages</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$31,624</td>
<td>$31,624</td>
</tr>
<tr>
<td>Graduate</td>
<td>$445,623</td>
<td>$83,975</td>
<td>-</td>
<td>$624,173</td>
<td>$1,153,772</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>$3,509</td>
<td>$8,457</td>
<td>$7,060</td>
<td>$578,950</td>
<td>$597,975</td>
</tr>
<tr>
<td>Totals</td>
<td>$4,072,439</td>
<td>$1,511,000</td>
<td>$1,206,244</td>
<td>$2,654,907</td>
<td>$9,444,590</td>
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</table>

### Table 3.8  Assistantship support from teaching, research and Extension sources.

<table>
<thead>
<tr>
<th></th>
<th>FY2012</th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
<th>FY2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>$393,797</td>
<td>$430,517</td>
<td>$551,183</td>
<td>$506,280</td>
<td>$550,629</td>
<td>$603,198</td>
<td>$689,723</td>
</tr>
<tr>
<td>Research</td>
<td>$239,519</td>
<td>$261,289</td>
<td>$263,074</td>
<td>$336,245</td>
<td>$396,971</td>
<td>$620,033</td>
<td>$541,741</td>
</tr>
<tr>
<td>Extension</td>
<td>$11,200</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$52,500</td>
<td>$29,800</td>
<td>$22,100</td>
</tr>
<tr>
<td>Totals</td>
<td>$644,516</td>
<td>$691,806</td>
<td>$814,257</td>
<td>$842,525</td>
<td>$1,000,100</td>
<td>$1,253,031</td>
<td>$1,253,564</td>
</tr>
</tbody>
</table>
Date of Last APR External Review and Analysis

The last Academic Program Review was held November 13-16, 2011. Members of the external review team were Drs. Guy Loneragan, Cal Ferrell, John Sofos, and Terry Stewart. Select recommendations from this review are listed below and progress towards achieving each recommendation is also described.

REVIEW TEAM RECOMMENDATION 1:
Communication – The Review Team believes that the department needs to find approaches to break down both horizontal and vertical boundaries to communication.

Response: The Department has eliminated the administrative structure of internal disciplinary section leaders and established a monthly update that includes communication to all faculty (on and off campus), staff, graduate students and the external advisory committee. In addition, a monthly newsletter has been establish that highlights department successes and information to all stakeholders. In recent years, the Department has enhanced its commitment to the use of social media as a mechanism for communicating to faculty, students, and stakeholders. One example of our social media communication success is demonstrated in our active Department's Facebook page continues to grow with currently 13,062 followers (an increase of more than 7,000 followers in one year!). Our nearest competitor, Oklahoma State University has 6,072 and our College of Agriculture and Life Sciences has 13,398 followers.

REVIEW TEAM RECOMMENDATION 2:
Strategic Planning – The Review Team believes that the time is appropriate for the Department to re-evaluate its mission, vision, and strategic plan.

Response: The Department completed an initial strategic plan in 2012, followed by a second comprehensive strategic plan (addressed previously in this self-study document) to more effectively fulfill the mission of the Department of Animal Science and establish five primary Areas of Excellence. The goal for the Areas of Excellence are to provide focused areas of scholarship within the Department of Animal Science for which we may be or become a national and international leader. The Areas of Excellence align with the missions of both the Department and College, as well as the strategic pillars of the University: (1) Transformational Education for all students, (2) Discovery and Innovation for the world, (3) Impact on the state, the nation and the world. These Areas of Excellence are:
• Cattle Adapted to Tropical and Subtropical Environments
• Pregnancy and Developmental Programming
• Safety, Quality, and Nutrition of Food Products
• Student and Stakeholder Engagement in Animal Science
• Quantifiable Animal Performance

REVIEW TEAM RECOMMENDATION 3:
Undergraduate Student Program. The Department has an opportunity to make significant upgrades in the curriculum and methods of course delivery.

Response: The Department remains one of the largest of its kind in the United States, offering degree programs leading to B.S., M.Ag., M.S., and PhD programs in Animal Science, Animal Breeding, and Physiology of Reproduction. Therefore, the training of competent future animal science researchers, operators, educators, and leaders is essential to discover and disseminate new knowledge, information, and technologies that sustain animal agriculture production systems to meet world animal protein demands in 2050. A comprehensive, multidisciplinary, competency-based curriculum is the cornerstone of the Texas A&M University Department of Animal Science plan to train, develop and educate future cohorts of trained animal scientists well equipped to address national and international challenges facing animal agriculture. Therefore, the Department completed a comprehensive revision to the undergraduate curriculum that was implemented in Fall 2018 (as previously described in this document). Current efforts have been initiated to review and revise the graduate student curriculum.
ACADEMIC PROGRAMS AND CURRICULA

Programs Offered

The Department of Animal Science (ANSC) offers the following degree programs:

- B.S. degree in ANSC with either a production/industry or science option and two certificate programs: equine science and meat science
- M.S./M.Ag. degrees in Animal Breeding (ANBR), Animal Science (ANSC), Physiology of Reproduction (PREP) and Equine Industry Management (EQIM) with two certificate programs offered in meat science and food safety.
- Ph.D. degree in ANBR, ANSC, and PREP.

Bachelor of Science

Growth of the animal science industry and affiliated fields has created the need for scientific, technical, and business knowledge in order for our graduates to be successful in addressing the needs of industry and society at large. The Animal Science discipline requires an understanding of the basic sciences, nutrition, breeding, genetics, physiology, disease, biotechnology, meat science, and marketing. Students are trained in animal science knowledge, analytical skills, problem solving, and leadership that will allow them to assume roles in production, feeding, health, further processing and research.

Students have two options in pursuit of the degree based on their career goals: production/industry or science option. Detailed program requirements are found on pages 40 and 41. University Core Curriculum courses and Animal Science Core courses are required for both options. Students then pursue a B.S. degree in either option by completing the respective courses within each option. Additionally, students may choose to participate in the equine science or meat science certificate programs, which provide students with an enhanced focus in equine or meat science knowledge, skills and competencies in addition to providing internship opportunities. Our students receive excellent and dedicated academic counseling from our undergraduate advisors to help them with degree and career choices.

Production/Industry Option

The Animal Science industry option combines business courses and some prerequisites needed for upper-level livestock (now called disciplinary focus) courses. Students completing a B.S. degree in the industry emphasis find employment with the animal and food industries in positions such as corporate management, quality assurance, sales, or technical support in live production, processing or marketing. Students in this emphasis also obtain positions with pharmaceutical and equipment companies, industry trade publications, and in various university and public service positions.

Science Option

The science option in Animal Science prepares students for advanced study in chemistry, biochemistry, nutrition, physiology, molecular genetics, reproduction, processing technology or microbiology for professional employment in research, teaching, or public service. This curriculum can be easily tailored to meet veterinary medicine pre-professional prerequisites.

Honors Program

The Animal Science Honors Program is designed for highly-motivated students who are majoring in Animal Science. All completed Honors coursework taken at Texas A&M University is designated as such on the student's official transcript. Students wishing register for honors courses must do so with the help of an academic advisor.

To enroll in the ANSC Honors Program, students must meet TAMU Honors eligibility requirements (see http://honors.tamu.edu)

Requirements for Honors in Animal Science:
An ANSC major must complete all of the requirements for an ANSC major, of which 18 hours must be completed as follows:
1. Twelve (12) hours of honors-level ANSC coursework.
   A. At least nine (9) hours of ANSC courses must be at the 300/400 level.
   B. At least three (3) hours of 400-level directed studies or research with honors credit (485 or 491). No more than six (6) honors credits in 491H and 485H combined.
2. Six (6) additional hours of honors-level coursework. 
A maximum of six (6) honors credits by AP or transfer may be used in meeting these requirements.

Grade requirements: A cumulative GPA equal to or greater than 3.5 and a GPA equal to or greater than 3.25 and no grade lower than a B in the 18 hours of required honors courses.

Eligible ANSC Courses:
- ANSC 107-General Animal Science
- ANSC 108-General Animal Science Laboratory
- ANSC 303 Nutrition
- ANSC 433-Reproduction (now 333)
- ANSC 485-Directed Studies
- ANSC 491-Undergraduate Research

ANIMAL SCIENCE GRADUATE PROGRAMS
The Department offers graduate degree programs leading to the Master of Agriculture, Master of Science, and Doctor of Philosophy degrees. In addition to gaining a degree in Animal Science, students may pursue degrees via interdisciplinary or intercollegiate faculties. Faculty expertise exists for a focus on genetics, breeding, physiology, animal well-being, production, nutrition, biochemistry, physiology, environment, management, microbiology, meat science and further processed meats, and marketing for all livestock species. Continual growth in the animal science industry requires students with technical knowledge/expertise to manage a successful animal agriculture-based enterprise. A major objective of the Department is to offer degree programs that provides knowledge, skills and training to gain employment in research, teaching, extension, or industrial operations. Our goal is to develop critical thinkers and problems solvers to bridge the gap between fundamental animal science research and its practical application to the production of livestock and their products.

Certificate Programs
A graduate certificate program represents an emphasis area within a particular field or it could be interdisciplinary and involve several fields. These programs are available to graduate students pursuing any graduate degree at Texas A&M University. Formal documentation of completing these programs will be placed on the student's transcript.

Certificates offered by the Department of Animal Science include:

Graduate Certificate in Meat Science – Students seeking this four-course, 12-hour program certificate must complete ANSC 607, Physiology and Biochemistry of Muscle as a Food; ANSC 627, Carcass Composition and Quality; ANSC 647, Technology of Meat Processing and Distribution; and ANSC 667 Industrial Processed Meat Operations. Upon completion, students will have a broad-based and in-depth overview of meat science and technology.

Graduate Certificate in Food Safety – This certificate is designed for students interested in food microbiology, HACCP, sanitation, regulatory affairs, and quality control or assurance. This certificate requires 12-credit hours from any of the following courses: ANSC/FSTC 657, Hazard Analysis and Critical Control Point (HACCP) System; DASC/FSTC 606, Microbiology of Foods; ANSC 637, Food Safety: Policy, Regulations, and Issues; ANSC/FSTC 697, Applied Microbiology for Foods of Animal Origin: Processing, Sanitation, and Sanitary Design; VIIS 615, Food Hygiene; VIIS 619, Food Toxicology II.

Master of Agriculture
(36 total credits)
The Master of Agriculture (M.Ag.) program in the Department of Animal Science prepares students for leadership roles in professional careers in agriculture and life sciences. This is a non-thesis, professional degree program which emphasizes the development of problem-solving skills and the practical aspects of academic coursework. Because of the diverse nature of the careers selected by M.Ag. graduates, degree plans vary and are developed to meet the unique needs of each individual student. The degree plan consists of 36 hours of coursework, an internship, a professional paper, and a comprehensive final oral examination to be administered by the student's advisory committee. Courses are selected by the student and his/her advisory committee to develop skills and expertise in specific academic areas to meet each student's career objectives.
**Master of Science**
(32 total hours)
The Master of Science (M.S.) curriculum is designed to develop new understanding through research and creativity. Students conduct research, write a thesis on original research as directed by the student's advisory committee and undergo a final examination. The student's thesis seminar will be announced for public attendance prior to the final exam. Detailed program requirements are found on page 51-52 of this section.

**Doctor of Philosophy**
(96 total hours)
Equivalent courses completed at another university for an M.S. degree may be substituted for some required courses at Texas A&M University. Work leading to the degree of Doctor of Philosophy (Ph.D.) is designed to give the candidate a thorough and comprehensive knowledge of his or her professional field and training in methods of research. The final basis for granting the degree shall be the candidate's grasp of the subject matter of a broad field of study and a demonstrated ability to do independent research. In addition, the candidate must have acquired the ability to express thoughts clearly and convincingly in both oral and written form. The degree is not granted solely for the completion of coursework, residence and technical requirements, although these must be met. For a student who has completed a master's degree, a D.D.S./D.M.D., D.V.M. or M.D. at a U.S. institution, a minimum of 64 hours is required on the degree plan for the degree of Doctor of Philosophy. For a student who has completed a baccalaureate degree but not a master's degree or a U.S. D.D.S./D.M.D., D.V.M. or M.D., a minimum of 96 hours is required on the degree plan for the degree of Doctor of Philosophy. Detailed program requirement are found on page 46 of this section.

**Graduate Majors**
Advanced study in Animal Science offers preparation for a future in teaching, research, extension, livestock and dairy production, and in industries involving food technology, livestock products and livestock management.

Majors offered are:

<table>
<thead>
<tr>
<th>Major</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>M.S. and M.Ag.</td>
</tr>
<tr>
<td>Physiology of Reproduction</td>
<td>M.S.</td>
</tr>
<tr>
<td>Animal Breeding</td>
<td>M.S.</td>
</tr>
<tr>
<td>Equine Industry Management</td>
<td>M.Ag.</td>
</tr>
</tbody>
</table>

The Department of Animal Science also participates in the following interdisciplinary degree programs:

<table>
<thead>
<tr>
<th>Major</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>MBIOT (M.S.)</td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td>M.S.</td>
</tr>
<tr>
<td>Genetics</td>
<td>M.S.</td>
</tr>
<tr>
<td>Nutrition</td>
<td>M.S.</td>
</tr>
</tbody>
</table>
# Undergraduate Production/Industry Option

## Catalog 2016 - 2017

### Additional Graduation Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>International &amp; Cultural Diversity (^1)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ANSC Writing/Communications (^2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 481</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Language (^3)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)See Undergraduate Catalog for choices.

\(^2\)See Academic Advisor for approved choices.

\(^3\)This requirement can be satisfied by satisfactory completion of two units of the same foreign language in high school or one year of the same language at the college level.

### Other University graduation requirements:
- Minimum 120 credit hours
- 36 upper division credit hours (300-400 level)
- 2.0 Overall GPR
- Minimum grade of “C” in ANSC coursework

Note: Prerequisites for professional programs must be completed with a minimum grade of “C”.

## Core Curriculum Coursework

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Hours</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ANSC 108 General Animal Science Lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- ANSC 303 Animal Nutrition</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 307 Meats</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 305 Animal Breeding</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 318 Feeds and Feeding</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 433 Reproduction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 437 Marketing and Grading</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- ANSC 481 Senior Seminar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- Tier I Production Elective (ANSC 406, 412, 414, 420, 447, DASC 418)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Tier II Production Elective (ANSC 311, 337, 408, 411, 434 or 439)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics (^1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- MATH</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- MATH</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Citizenship (^1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- American History</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- American History</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Government/Political Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Government/Political Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Life and Physical Sciences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ANSC 107 General Animal Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- CHEM 101 Intro Chem I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- CHEM 111 Intro Chem lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Biology Elective (BIOL 111 or BIOL 107)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Social and Behavioral Science (^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- AGEC 105 Intro to Ag Economics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Language, Philosophy and Culture (^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Creative Arts (^1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Total Core Curriculum Hours</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td><strong>General Elective Coursework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional Science Coursework</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CHEM 222 Elements of Organic Chem</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Entomology (ENTO 201 or ENTO 208/209)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- GENE 301 Genetics/GENE 312 Genetics Lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Microbiology (DASC 326 or BIOL 206)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Physiology (VTPP 323, VLCS 422 or ANSC 242)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Total Additional Science Hours</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><strong>Directed Elective Coursework</strong></td>
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<td></td>
</tr>
<tr>
<td>- ANSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ANSC</td>
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<tr>
<td>- ANSC</td>
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<td>- ANSC</td>
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<td></td>
</tr>
<tr>
<td>- ANSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Total Coursework Hours</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

### Core Curriculum Coursework Hours

- Communication: 3
- Mathematics: 6
- Citizenship: 3
- Life and Physical Sciences: 10
- Social and Behavioral Science: 3
- Language, Philosophy and Culture: 3
- Creative Arts: 3
- Total Core Curriculum Hours: 44

### Additional Science Coursework

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Hours</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>- CHEM 222 Elements of Organic Chem</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Entomology (ENTO 201 or ENTO 208/209)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- GENE 301 Genetics/GENE 312 Genetics Lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>- Microbiology (DASC 326 or BIOL 206)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Physiology (VTPP 323, VLCS 422 or ANSC 242)</td>
<td>3</td>
<td></td>
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<tr>
<td>- Total Additional Science Hours</td>
<td>16</td>
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</table>

### Total Coursework Hours

- Core Curriculum: 9
- Additional Science: 16
- General Elective: 9
- Directed Elective: 11
- Total Coursework: 44
### Core Curriculum Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td></td>
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</tr>
<tr>
<td>ENGL 104</td>
<td>3</td>
<td></td>
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<tr>
<td>COMM 203, ENGL 210</td>
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<tr>
<td><strong>Mathematics</strong></td>
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<tr>
<td>MATH¹</td>
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<tr>
<td>MATH²</td>
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<tr>
<td><strong>Citizenship</strong></td>
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<tr>
<td>American History¹</td>
<td>3</td>
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</tr>
<tr>
<td>American History²</td>
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<tr>
<td>Government/Political Science¹</td>
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<td>Government/Political Science²</td>
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<tr>
<td><strong>Life and Physical Sciences</strong></td>
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<tr>
<td>ANSC 107 General Animal Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 101 Intro Chem I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 111 Intro Chem Lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIOL 111 Intro Biology I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Social and Behavioral Science¹</strong></td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Language, Philosophy and Culture¹</strong></td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Creative Arts¹</strong></td>
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<td><strong>Total Core Curriculum Hours</strong></td>
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<td><strong>44</strong></td>
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### Major Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ANSC 108 General Animal Science Lab</td>
<td>1</td>
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<tr>
<td>ANSC 303 Animal Nutrition</td>
<td>3</td>
<td></td>
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<tr>
<td>ANSC 307 Meats</td>
<td>3</td>
<td></td>
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<tr>
<td>ANSC 305 Animal Breeding</td>
<td>3</td>
<td></td>
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<tr>
<td>ANSC 318 Feeds and Feeding</td>
<td>3</td>
<td></td>
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<tr>
<td>ANSC 433 Reproduction</td>
<td>3</td>
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<tr>
<td>ANSC 481 Senior Seminar</td>
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<tr>
<td>Tier I Production Elective</td>
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### Supporting Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Completed</th>
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<tbody>
<tr>
<td>AGLS 101</td>
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<tr>
<td>Statistics (STAT 301)</td>
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<tr>
<td><strong>Total Coursework Hours</strong></td>
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### Elective Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td><strong>Total Coursework Hours</strong></td>
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### Additional Science Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Completed</th>
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<tbody>
<tr>
<td>BIOL 112 Intro Biology II</td>
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<tr>
<td>CHEM 102 Intro Chem II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 112 Intro to Chem II Lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHEM 227 Organic Chem I</td>
<td>3</td>
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<tr>
<td>CHEM 237 Organic Chem Lab I</td>
<td>1</td>
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<td>CHEM 228 Organic Chem II</td>
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<tr>
<td>CHEM 238 Organic Chem Lab II</td>
<td>1</td>
<td></td>
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<tr>
<td>BICH 410 Biochemistry I</td>
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<td></td>
</tr>
<tr>
<td>BICH 411 Biochemistry II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Microbiology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>(BIOL 206, BIOL 351 or VTPB 405)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENE 301 Genetics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>GENE 312 Genetics Lab</td>
<td>4</td>
<td></td>
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<tr>
<td>Physiology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>(VTPP 323 or BIOL 319)</td>
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<td></td>
</tr>
<tr>
<td>PHYS 201 Physics I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHYS 202 Physics II</td>
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<tr>
<td><strong>Total Additional Science Hours</strong></td>
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### Additional Graduation Requirements

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<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
<th>Completed</th>
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<tbody>
<tr>
<td>International &amp; Cultural Diversity¹</td>
<td>3</td>
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<tr>
<td>ANSC Writing/Communications²</td>
<td>3</td>
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<tr>
<td>ANSC 481</td>
<td>1</td>
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<tr>
<td>Foreign Language¹</td>
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</tr>
</tbody>
</table>

¹See Undergraduate Catalog for choices.

²See Academic Advisor for approved choices.

³This requirement can be satisfied by satisfactory completion of two units of the same foreign language in high school or one year of the same language at the college level.

Other University graduation requirements:
- Minimum 120 credit hours
- 36 upper division credit hours (300-400 level)
- 2.0 Overall GPR
- Minimum grade of “C” in ANSC coursework

Note: Prerequisites for professional programs must be completed with a minimum grade of “C”.
**Certificate in Equine Science**
The Department of Animal Science offers a Certificate in Equine Science for students seeking to obtain specialization in this area. Students must complete a minimum of 23 credit hours by taking eight required courses from the following list to complete the minimum credit hour requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 201/316</td>
<td>Introductory Equine Care &amp; Use / Equine Selection &amp; Judging</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 211</td>
<td>Equine Industry &amp; Career Prep</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 221/311</td>
<td>Equine Behavior &amp; Training / Stock Horse Advanced Training</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 411</td>
<td>Equine Nutrition &amp; Health</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 420</td>
<td>Equine Production &amp; Management</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 422</td>
<td>Equine Disease &amp; Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 423</td>
<td>Issues in the Equine Industry</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 494/491</td>
<td>Animal Science Internship / Research</td>
<td>3</td>
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</table>

**Certificate in Meat Science**
The Department of Animal Science offers a Certificate in Meat Science for students seeking to obtain specialization in this area. Students must complete a minimum of 18 credit hours by taking four required courses and five hours of elective courses selected from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANSC 307</td>
<td>Meats</td>
<td>3</td>
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<tr>
<td>DASC 326</td>
<td>Food Bacteriology</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 447</td>
<td>Advanced Meat Science &amp; Technology</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 457</td>
<td>Hazard Analysis &amp; Critical Control Point System</td>
<td>3</td>
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**Electives:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANSC 317</td>
<td>Meat Selection, Evaluation &amp; Grading</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 337</td>
<td>Meat Merchandising</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 407</td>
<td>Meat Science &amp; Technology</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 437</td>
<td>Marketing &amp; Grading of Livestock &amp; Meats</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 485</td>
<td>Directed Studies</td>
<td>1 to 4</td>
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<tr>
<td>DASC 327</td>
<td>Food Bacteriology</td>
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</tr>
<tr>
<td>Course</td>
<td>Credits</td>
<td>Description</td>
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<td>--------</td>
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<tr>
<td>Animal Science</td>
<td>3</td>
<td>Introduction to Animal Science</td>
</tr>
<tr>
<td>Animal Nutrition</td>
<td>4</td>
<td>Principles of Animal Nutrition</td>
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<tr>
<td>Animal Behavior</td>
<td>3</td>
<td>Animal Behavior and Welfare</td>
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<td>Genetics</td>
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<td>Principles of Genetics</td>
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<tr>
<td>Biostatistics</td>
<td>3</td>
<td>Biostatistics for Animal Scientists</td>
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<tr>
<td>Biochemistry</td>
<td>3</td>
<td>Introduction to Biochemistry</td>
</tr>
<tr>
<td>Molecular Biology</td>
<td>4</td>
<td>Introduction to Molecular Biology</td>
</tr>
</tbody>
</table>

**Notes:**
- Course requirements vary by semester.
- Credits may be subject to change.
- Additional courses may be required for specialization.
- Students are advised to consult with an academic advisor for personalized guidance.
COURSE INVENTORY AND COURSE DESCRIPTIONS FOR BACHELOR OF SCIENCE DEGREE

(Lecture-Lab hours) Credits offered. Course offered: Fall = I; Spring = II, Summer = S

Instructors: Dr. Shawn Ramsey, Dr. Leslie Frenzel, Dr. Katie Dunlap
Scientific animal agriculture; selection, reproduction, nutrition, management and marketing of beef cattle, swine, sheep, goats and horses; evaluation and processing of meat, wool and mohair. Importance of livestock and meat industries.
Prerequisite: Concurrent registration in ANSC 108 required.

ANSC 108. General Animal Science. (0-2) Credit 1. I, II, S
Instructor: Staff
Laboratory to accompany ANSC 107.
Prerequisite: Concurrent registration in ANSC 107 required.

ANSC 117. Texas Barbecue. (1-0) Credit 1. I
Instructors: Dr. Jeff Savell & Ray Riley
Survey, demonstration and participation in preparation techniques of Texas barbecue; comparison of regional and international barbecue methods.
Prerequisite: First-year students.

ANSC 201. Introductory Equine Care & Use. (2-2) Credit 2. I, II
Instructor: Haley Collins
Survey of basic equine care and use; breeds of horses and their use; care and maintenance of equines including feeding, health care, housing and equipment.
Prerequisite:

ANSC 207. Art & Heritage of Livestock. (3-0) Credit 3. Inactive
Instructor: Staff
Using art as a venue to understand the legacy and heritage of livestock production and livestock's contribution to civilization and society; from man as hunter, agriculturist, and finally, as industrialist; from cave painting to Russell and Remington; history of the effects of painting, poetry, architecture and sculpture on agriculture.
Prerequisite:

Instructor: Dr. Nancy Ing
Types, care, physiology, common diseases and common treatments of companion animals (dogs, cats, exotic pets); careers including biomedical research; solution for problems such as behavior and overpopulation.
Prerequisite: ANSC 107.

ANSC 211. Equine Industry and Career Preparation. (Hrs) Credit 2.
Instructor: Staff
Identify opportunities and skill sets required to pursue a career in the equine industry; development of resume, communication, professional etiquette and interview skills.
Prerequisite: ANSC 107.

ANSC 221. Equine Handling and Safety. (2-2) Credit 3.
Instructor: Staff
Working around horses safely and effectively; includes equine behavior, proper handling techniques, controlling movement of horses, health assessment and basic management.
Prerequisite: ANSC 107.

ANSC 230. Animal and Research Experience. (Hrs) Credit 2. (Inactive)
Instructor: Staff
Hands-on experience with farm animals; development and understanding of the scientific method; demonstration of critical-thinking skills to evaluate scientific information.
Prerequisite: ANSC 107.

ANSC 242. Growth & Development of Livestock. (3-0) Credit 3. II
Instructor: Dr. Tom Welsh
Evaluation of slaughter livestock as related to growth and development, production efficiency, carcass value; selection of breeding animals based on performance, production records/visual appraisal; principles of growth biology; biotechnological tools to manage growth/development.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 289. Special Topics – Equine Handling and Safety. (Hrs) Credit 1-4.
Instructor: Haley Collins
Selected topics in an identified area of animal science. May be repeated for credit.
Prerequisite: Approval of instructor.

Instructor: Staff
Selected topics in an identified area of animal science. May be repeated for credit.
Prerequisites: Approval of instructor.

Instructor: Staff
Research conducted under the direction of faculty member in Animal Science. Two-time repeat.
Prerequisites: Freshman or sophomore classification and approval of instructor; 2.0 GPR in major and overall.

ANSC 302. Basic Beef Cattle Production. (3-0) Credit 3. I
Instructor: Dr. Jason Cleere
Fundamental concepts of beef management and production principles. Service course recommended for non-animal science majors.
Prerequisites: ANSC 107 & ANSC 108.

Instructor: Dr. Tryon Wickersham
Scientific approach to nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components; emphasis on the comparative aspects of gastrointestinal tracts and on digestion, absorption, and metabolism of nutrients.
Prerequisites: CHEM 222, CHEM 227, or equivalent. Cross-listed with NUTR 303.

ANSC 305. Animal Breeding. (2-2) Credit 3. I, II, S
Instructor: Dr. Jim Sanders
A systems approach to selection and mating of livestock; gene frequency, heritability, relationship, inbreeding, linebreeding, heterosis, crossbreeding, direct and correlated response to selection, and use of pedigree, family, progeny testing and indices for selection.
Prerequisites: ANSC 107 and ANSC 108; GENE 301; STAT 301.

Instructor: Dr. Jeff Savell
Integrated studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food.
Prerequisites: ANSC 107 and ANSC 108. Cross-listed with FSTC 307.

Instructor: Dr. Courtney Daigle
Application of behavior of cattle, horses, sheep, goats and swine to their management; basic principles, physiology of behavior, perception, training, predators, use of dogs in livestock production, stress and animal welfare.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 311. Equine Behavior & Training. (1-5) Credit 3. I, II
Instructor: Paige Linne
Equine behavior and application of principles of psychology to training horses; systematic approaches to horse training emphasizing principles of learning; equipment and its use; stable management and preparation of horses for competition; separate laboratory sections for students with varying backgrounds.
Prerequisite:

ANSC 312. Equestrian Technology. (1-3) Credit 2. I, II
Instructor: Dr. Martha Vogelsang
Advanced scientific methods and techniques for execution of performances in hunter, dressage and stock horse events; anatomical, physiological and psychological implications; preparation of horses and riders.
Prerequisite:

ANSC 314. Wool Evaluation and Grading. (1-3) Credit 2. I
Instructor: Dr. Shawn Ramsey
Evaluation of U.S.D.A. grades for wool and mohair; steps involved in processing raw wool into finished fabric; genetic/environmental factors affecting quality characteristics of wool/mohair; grading, evaluation/selection of fleeces for economic value; oral/written defense of judgments.

Prerequisite:

ANSC 315. Livestock Judging. (1-3) Credit 2. I

Instructor: Dr. Chris Skaggs

Selection and evaluation of beef cattle, swine, sheep and horses. Ability to present accurate, clear and concise oral and written reasons stressed.

Prerequisites: ANSC 107 and ANSC 108; junior or senior classification.

ANSC 316. Equine Selection & Judging. (1-3) Credit 2. II

Instructor: Haley Collins

Detailed evaluation of athletic performance of horses; influence of heredity, conformation, training and other environmental effects; use of performance and racing records and visual appraisal; industry trends; oral and written defense of judgments.

Prerequisite: ANSC 311 or equivalent experience.


Instructor: Dr. Jeff Savell

Selection and grading of carcasses and wholesale cuts of beef, pork and lamb; principles of evaluation included in carcass contests and progeny testing.

Prerequisites: ANSC 107 and ANSC 108.

ANSC 318. Feeds and Feeding. (2-3) Credit 3. I, II, Summer of even-numbered years

Instructor: Dr. Gordon Carstens

Characteristics of feedstuffs used in livestock enterprises; manual and computer ration formulation procedures and life-cycle nutritional management of beef, swine, sheep, dairy, horses, fish and pets; methods of grain, protein supplement and forage processing and evaluation; commercial and on-the-farm feed mixing methods and feed control laws.

Prerequisite: ANSC 303.

ANSC 320. Animal Nutrition and Feeding. (3-0) Credit 3. I, II

Instructor: Staff

Nutritional functions of water, protein, carbohydrates, fats, minerals and vitamins and their digestion, absorption, use and excretion; energy, protein and forage feedstuff characteristics and processing; nutritional requirements, ration formulation and feeding methods for farm animals; general course for non-animal science majors.

Prerequisites: CHEM 222 and CHEM 227.


Instructor: Staff

Advanced evaluation of cattle, swine, sheep and equine; products produced or associated with each species; advanced oral or written defense of judgments.

Prerequisites: ANSC 107 and ANSC 108.

ANSC 326. Food Bacteriology. (1-3) Credit 2. I

Instructor: Dr. Matt Taylor

Microbiology of human foods and accessory substances; raw and processed foods; physical, chemical, biological phases of spoilage; standard industry techniques of inspection and control.

Prerequisite: Junior or senior classification or approval of instructor.

ANSC 327. Food Bacteriology. (0-3) Credit 1. I

Instructor: Dr. Matt Taylor

Laboratory to accompany ANSC 326.

Prerequisite: Junior or senior classification or approval of instructor.

ANSC 335. Purebred Beef Cattle Management. (1-2) Credit 2. Inactive

Instructor: Staff

Information and skills needed to be successful in the production, management and merchandising of purebred beef cattle; purpose and organization of the purebred beef cattle industry, and career opportunities in the industry.

Prerequisite: Junior or senior classification.

ANSC 337. Meat Merchandising. (1-3) Credit 2. II

Instructor: Dr. Jeff Savell
Steps of meat processing and merchandising of retail and foodservice; merchandising practices such as selection, identification, fabrication, pricing, packaging and distribution.

Prerequisites: ANSC 307; junior or senior classification.

**ANSC 351. Current Issues in Animal Agriculture. Credit 1 to 4. I, II**

**Instructor:** Dr. Gary Smith

Selected topics in an identified area of animal science. May be repeated for credit.

Prerequisite: Junior or senior classification.

**ANSC 402. Exploring Animal Industries. (2-0) Credit 2. I, II**

**Instructor:** Dr. Leslie Frenzel

Instruction for students nearing the end of their undergraduate studies; theoretical understanding of organizations and human resources available to students; awareness and understanding of the job application process, résumé and cover letter writing; networking, professional and business attire; ethics related to job searches and retention.

Prerequisite: Junior or senior classification.

**ANSC 406. Beef Cattle Production and Management. (3-2) Credit 4. I, II, S**

**Instructor:** Dr. Andy Herring

Basic principles and methods of application involved in breeding, feeding, management, marketing and disease control in cow-calf production.

Prerequisites: ANSC 303, ANSC 305, ANSC 318; ANSC 433 or registration therein.

**ANSC 408. Management of Stocker and Feedlot Cattle. (2-2) Credit 3. II**

**Instructor:** Dr. Jason Sawyer

Basic principles involved in feeding, management, marketing and disease control of stocker and feeder cattle from weaning through slaughter for economical production of beef.

Prerequisites: ANSC 305, ANSC 406, ANSC 433.

**ANSC 411. Equine Nutrition and Health. (3-0) Credit 3.**

**Instructor:** Dr. Jessica Leatherwood and Dr. Sarah White

Designed to provide knowledge of nutrition and health in the horse; gastrointestinal anatomy, nutrient utilization, feeding management and nutritional requirements; metabolic diseases, infectious diseases, internal and external parasites, and herd health management.

Prerequisites: Junior or senior classification and approval of instructor.

**ANSC 412. Swine Production and Management. (3-2) Credit 4. I**

**Instructor:** Staff

Basic principles and their practical application in efficient, economical pork production; all areas of production – breeding and selection, nutrition, housing and equipment, marketing, herd health and economic management.

Prerequisites: ANSC 318 or registration therein for animal science majors; ANSC 320 or registration therein for non-Animal Science majors.

**ANSC 414. Sheep and Goat Production and Management. (3-2) Credit 4. II**

**Instructor:** Dr. Shawn Ramsey

Application of basic principles of genetics, physiology and nutrition to practical sheep and angora goat production systems; management, health care and marketing of animals and fiber.

Prerequisites: ANSC 303 and 318 or approval of instructor.

**ANSC 415. Brazil Comparative Ruminant Animal Nutrition. (3-0) Credit 3. S**

**Instructor:** Dr. Luis Tedeschi

Contrast two scenarios of ruminant production in Brazil; the effects of globalization on the two different production systems.

Prerequisite: ANSC 303 or ANSC 320 or approval of instructor.

**ANSC 418. Equine Exercise Physiology. Credit 3.(2-2)**

**Instructor:** Dr. Sarah White

Changes within the systems of the horse resulting from the physical stresses of exercise, adaptations of systems in response to a training regimen; methodology for measuring improvement in physical condition; foundation for development of training programs for horses in moderate, intense or prolonged performance activities.

Prerequisite: Junior or senior classification and approval of instructor.

**ANSC 419. Equine Reproduction. (3-0) Credit 3. I**

**Instructor:** Dr. Martha Vogelsang

Reproductive anatomy of the stallion and mare; industry and scientific practices; comprehensive analysis of the
body of scientific research; development of critical thinking ability to assess and discuss previous research in comparison of needed research.

*Prerequisites:* ANSC 201 and junior or senior classification or approval of instructor.

**ANSC 420. Equine Production and Management. (3-2) Credit 4. II**

*Instructor:* Dr. Martha Vogelsang

Application of biological and biotechnological principles and concepts in areas including genetics, breeding, nutrition, reproduction, immunology, parasitology, anatomy and exercise physiology to efficient production of horses for market; management of equine enterprises.

*Prerequisites:* ANSC 201, ANSC 305, ANSC 318, and ANSC 433.

**ANSC 421. Stock Horse Advanced Training. (3-2) Credit 3.**

*Instructor:* Staff

Theory and practice of applying scientific principles of psychology and behavior modification to advanced training of the stock horse; exercise conditioning and humane training methods to maximize learning effectiveness; current industry trends for preparing horses and showing in stock horse events. *Prerequisite:* ANSC 311 and previous riding experience.

**ANSC 423. Issues in the Equine Industry. Credit 3.**

*Instructor:* Dr. Jessica Leatherwood

Integration of cumulative knowledge acquired in the equine science curriculum to demonstrate critical thinking and communication skills to address critical issues in the equine industry.

*Prerequisite:* Junior or senior classification and approval of instructor.

**ANSC 424. Equine Sales Management. (3-0) Credit 3.**

*Instructor:* Dr. Jessica Leatherwood

Hands-on horse sale management experience through planning and conducting the Texas A&M University Department of Animal Science Horse Sale.

*Prerequisite:* Junior or senior classification and approval of instructor.

**ANSC 431. Equine Marketing and Development. (3-0) Credit 3.**

*Instructor:* Staff

Scope of domestic and international equine industry; safe handling and transport of horses for export or import; career opportunities in the equine field.

*Prerequisite:* Junior or senior classification or approval of instructor.

**ANSC 433. Reproduction in Farm Animals. (2-2) Credit 3. I, II, S**

*Instructor:* Dr. Carey Satterfield

Physiological principles of reproductive processes in cattle, sheep, swine, and horses including sperm and ova production, estrus, fertilization, gestation and parturition; techniques of semen evaluation and storage, estrous synchronization, embryo transfer and pregnancy determination.

*Prerequisite:* Junior classification.

**ANSC 434. Artificial Breeding of Livestock. (2-2) Credit 3. I, II, S**

*Instructor:* Dr. Rodolfo Cardoso

Available and emerging technologies; strategies including artificial insemination, embryo manipulation and transfer, control of ovulation, sex ratio manipulation and animal cloning for managing the reproductive function of farm animals; hands-on sessions using available technologies including artificial insemination of cattle.

*Prerequisite:* ANSC 433; priority enrollment given to Animal Science graduating seniors.

**ANSC 436. Texas Panhandle Beef Tour. (2-0) Credit 2. S**

*Instructor:* Dr. Tryon Wickersham

Facets of beef production from cow/calf operations to retail product; experiential knowledge of technologies and practices to enhance efficiency to enlighten students regarding the array of career opportunities in the beef production industry.

*Prerequisite:* Junior or senior classification or approval of instructor.

**ANSC 437. Marketing and Grading of Livestock and Meats. (2-2) Credit 3. I, II**

*Instructor:* Dr. Jeff Savell

Study of USDA livestock and carcass grades; understanding current market trends for beef, pork, lamb and goat; review of branded and certified programs; principles applied in contracting, breakeven determination, hedging, and grid or formula pricing.

*Prerequisite:* Junior or senior classification.

**ANSC 439. Feedlot Risk Management. (2-0) Credit 2. II**

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*Department of Animal Science Academic Program Review*
Instructor: Staff  
Advanced study of livestock marketing techniques; cash sales, video sales, futures and options markets, forward contracting; problem solving of real-time livestock marketing situations; risk of ownership of hypothetical livestock operations.  
**Prerequisite:** ANSC 437.  

**ANSC 447. Advanced Meat Science & Technology. (3-3) Credit 4. I**  
**Instructor:** Dr. Rhonda Miller  
Advanced basic and applied studies of meat science and/or technology utilizing the underlying physiological and structural components for conversion to human food; understanding the influence of pre- and post-harvest factors on meat quality, composition, color, packaging, sensory and preparation factors; applying scientific and business principles to manufacturing and process flow of commercial meat food products and demonstrating knowledge of these principles through development of meat products.  
**Prerequisites:** ANSC 307; CHEM 222 or approval of instructor; junior or senior classification.  

**ANSC 457. Hazard Analysis and Critical Control Point System. (3-0) Credit 3. I**  
**Instructor:** Dr. Kerri Gehring  
Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices and standard operating procedures development.  
**Prerequisite:** ANSC 326 or approval of instructor. Cross-listed with NFSC 457.  

**ANSC 470. Quality Assurance for the Food Industry (3-0) Credit 3. I**  
**Instructor:** Dr. Wes Osburn  
Principles of food system process control including statistical process control (SPC) and tools required to assure uniform communication and understanding of quality assurance systems.  
**Prerequisite:** Junior or senior classification. Cross-listed with NFSC 470.  

**ANSC 481. Seminar. (1-0) Credit 1. I, II, S**  
**Instructor:** Staff  
Review of literature and research problems related to the livestock and food industries; preparation of a technical report including an oral presentation supported by a written technical paper.  
**Prerequisite:** Priority enrollment given to graduating Animal Science seniors.  

**ANSC 484. Livestock Practicum. (0-2) Credit 1. I, II**  
**Instructor:** Dr. Shawn Ramsey  
Provides students an opportunity to learn skills required in livestock production; planned for students who have had limited farm and ranch experience in one or more species.  
**Prerequisite:** Junior or senior classification in animal science or approval of instructor.  

**ANSC 485. Directed Studies. Credit 1 to 4. I, II, S**  
**Instructor:** Staff  
Directed individual study of selected problem in field of animal science.  
**Prerequisites:** Junior or senior classification; written approval of professor supervising activity; 2.0 GPR in major/overall.  

**ANSC 487. Sensory Evaluation of Foods. (2-2) Credit 3. II**  
**Instructor:** Dr. Rhonda Miller  
Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques.  
**Prerequisites:** CHEM 222 or CHEM 228; Junior or senior classification.  

**Instructor:** Staff  
Selected topics in an identified area of animal science. May be repeated for credit.  
**Prerequisite:** Junior or senior classification.  

**ANSC 491. Research. Credit 1-4.**  
**Instructor:** Staff  
Research conducted under the direction of faculty member in animal science. 3-time repeat.  
**Prerequisites:** Junior or senior classification, approval of instructor; 2.0 GPR in major/overall.  

**ANSC 494. Animal Science Internship. Credit 1 to 5. I, II, S**  
**Instructor:** Staff
Independent study and supervised field experience related to the student’s professional interest.

Prerequisite: Junior or senior classification or approval of instructor; 2.0 GPR in major/overall.

ANSC 495. International Agriculture and Animal Production. Credit 1 to 4. I, II, S

Instructor: Dr. Shawn Ramsey
Selected topics in an identified area of Animal Science. May be repeated for credit.

Prerequisite: Junior or senior classification.

NEW OR RENUMBERED COURSES SUPPORTING REVISED ANIMAL SCIENCE UNDERGRADUATE CURRICULUM
(implemented for incoming freshmen, Fall 2018)

ANSC 101: Introductory Seminar for Animal Science (1-0). Credit 1. I

Instructor: Dr. Chris Skaggs
Orientation to programs and opportunities in the Department of Animal Science, to create an awareness of campus resources for financial aid and tutoring, to develop goals for college career and to initiate planning for internship and job opportunities.

Prerequisite:

ANSC 111: Animal Production Systems (2-2). Credits 3. II

Instructor: Dr. Shawn Ramsey
Transformative experiences related to beef cattle, dairy cattle, equine, sheep, swine, goats, companion animals, meats, food products and food safety; exposure to available animal science careers and potential areas of future/additional study.

Prerequisite: Grade of C or better in ANSC 107 and ANSC 108

ANSC 113: Farm Animal Biosystems (2-0) Credits 2. II

Instructors: Dr. Kathrin Dunlap and Dr. Steve Smith
Information regarding the processes by which networks of cells are controlled and coordinated within the farm animal.

Prerequisite: Grade of ‘C’ or better in ANSC 107 and ANSC 108.

ANSC 333: Reproduction in Farm Animals. (2-2) Credit 3. I, II, S (formerly ANSC 433)

Instructor: Dr. Carey Satterfield
Physiological principles of reproductive processes in cattle, sheep, swine, and horses including sperm and ova production, estrus, fertilization, gestation and parturition; techniques of semen evaluation and storage, estrous synchronization, embryo transfer and pregnancy determination.

Prerequisites: Grade of ‘C’ or better in ANSC 111 and ANSC 113; junior classification or approval of instructor.

ANSC 399: Animal Science Experience Credits 0-4. I, II, S

Instructors: Staff
Participation in an approved high-impact learning practice; reflection on professional outcomes from animal science body of knowledge; documentation and self-assessment of learning experience at mid and final curriculum points.

Prerequisite: Junior or senior classification.

ANSC 404. Behavior & Management of Domestic Animals. (3-2) Credit 4. I, II

Instructor: Dr. Courtney Daigle
Application of behavior of cattle, horses, sheep, goats and swine to their management; basic principles, physiology of behavior, perception, training, use of dogs in livestock production, stress/animal welfare.

Prerequisites: Grade of ‘C’ or better in ANSC 305, ANSC 307, ANSC 318 and ANSC 333; junior or senior classification or approval of instructor.

ANSC 498. Animal Science Capstone. Credit 4. I, II

Instructor: Staff
Senior capstone project for students preparing to enter a career related to animal science or a professional school; individual projects based on a self-selected topic in animal science; includes a paper containing both translational and technical descriptions plus statements regarding the expected financial and social impacts of selected topic.

Prerequisites: Grade of ‘C’ or better in ANSC 399 and from one of the following: ANSC 404, ANSC 406, ANSC 408, ANSC 412, ANSC 414, ANSC 420, ANSC 434, ANSC 447 or DASC 418; junior or senior classification or approval of instructor.
Graduate Program Curricula

Requirements leading to the Master of Agriculture degree for Animal Science:
Thirty-six (36) graduate credit hours beyond the B.S. degree. General requirements:
Animal Science Production – Minimum of three (3) hours selected from the following or equivalent courses:

(Lecture-Lab hours) Credits offered.
- ANSC 406 – Beef Cattle Production and Management (3-2); Credits 4
- ANSC 412 – Swine Production and Management (3-2); Credits 4
- ANSC 414 – Sheep and Goat Production and Management (3-2); Credits 4
- ANSC 420 – Equine Production and Management (3-2); Credits 4
- ANSC 605 – Advancements in Beef Cattle Production (3-0); Credits 3
- ANSC 608 – Beef Cattle Management (3-0); Credits 3

Management – Minimum of three (3) hours selected from the following or equivalent courses:
- MGMT 626 – Teams in Organizations (3-0); Credits 3
- MGMT 630 – Behavior in Organizations (3-0); Credits 3
- MGMT 640 – Managing for Creativity and Innovation (3-0); Credits 3
- MGMT 655 – Survey of Management (3-0); Credits 3
- MGMT 658 – Managing Projects (3-0); Credits 3
1. One (1) hour of Graduate Seminar – ANSC 681
2. No more than nine (9) hours of upper level (300 and 400) undergraduate courses.
3. Maximum of eight (8) hours of ANSC 684 – Professional Internship credits.
4. Maximum of eight (8) hours of ANSC 685 – Directed Studies.
5. Combination of ANSC 684 and 685 hours must not exceed 25% of the degree plan (nine (9) hours).
6. ANSC 691 – Research credit hours may not be used.

This is a non-thesis degree. The professional internship seminar will be announced for public attendance prior to the final exam.

Requirements leading to the Master of Equine Industry Management degree:
Twenty-one (21) required graduate credit hours and 15 elective hours.

Required Courses:
- ANSC 621 – Issues in the Equine Industry; Credit 3
- ANSC 612 – Equine Reproduction; Credit 3
- ANSC 611 – Equine Nutrition; Credit 3
- VLCS 422 – Equine Disease and Epidemiology; Credit 3
- ANSC 685 – Directed Studies; Credit 3
- ANSC 684 – Professional Internship; Credit 6

Elective Courses:
- ALED 340 – Professional Leadership Development; Credit 3
- MGMT 675 – Leadership & Organization; Credit 3
- AGCJ 303 – Agriculture Media Writing II; Credit 3
- AGCJ 306 – Theory of Ag Public Relations; Credit 3
- AGCJ 404 – Communicating Ag Information to the Public; Credit 3
- AGEC 619 – Managerial Economics in Agribusiness; Credit 3
- MKTG 621 – Survey of Marketing; Credit 3
- MKTG 656 – Marketing Communications Management; Credit 3
- MKTG 658 – Managing Projects; Credit 3
1. No more than 9 hours of upper level (300 and 400) undergraduate courses.
2. Combination of ANSC 681 and 685 hours must not exceed 25% of the degree plan (nine (9) hours).
3. ANSC 691 – Research credit hours may not be used.

This is a non-thesis degree. The professional internship seminar will be announced for public attendance prior to the final exam.

Requirements leading to the Master of Science degree from Animal Science, Animal Breeding, or Reproductive Physiology:
Thirty-two (32) graduate credit hours beyond the B.S. degree. General requirements:
1. Minimum of five (5) hours in Statistics
A. STAT 651 – Statistics in Research I; Credit 3
B. STAT 652 – Statistics in Research II; Credit 3
C. ANSC 622 – Research Methods in Animal Science; Credit 2

2. Graduate Seminar – ANSC 681 or 682 (1 hour)
3. No more than eight (8) hours of ANSC 691 (Research) or ANSC 685 (Directed Studies)
4. No more than nine (9) hours of upper-level (300 and 400) undergraduate courses.

See Graduate Catalog [http://catalog.tamu.edu/] for additional requirements.

Requirements leading to the Doctor of Philosophy degree for Animal Science, Animal Breeding, and Physiology of Reproduction:
Sixty-four (64) graduate credit hours beyond the M.S. degree, or 96 hours beyond the B.S. degree when no M.S. degree is obtained. General requirements:
1. Ph.D. required courses:
   A. Statistics – Minimum of 6 hours selected from the following or equivalent courses:
      i. STAT 651 – Statistics in Research I (3-0); Credit 3
      ii. STAT 652 – Statistics in Research II (3-0); Credit 3
      iii. ANSC 622 – Research Methods in Animal Science (2-0); Credit 2
   B. Graduate Seminar
      i. ANSC 681 – Research Seminar (1-0); Credit 1
   C. Biochemistry – Minimum of 6 hours selected from the following or equivalent courses:
      i. BICH 601 – Fundamentals of Biochemistry I (3-0); Credit 3
      ii. BICH 602 – Fundamentals of Biochemistry II (3-0); Credit 3
      iii. ANSC 619 – Physiological Chemistry of Livestock Species (3-0); Credit 3

2. Graduate Seminar (1 hour)
3. Ph.D. students have 10 consecutive calendar years to complete their degree. Once a Ph.D. student reaches 99 hours and/or 21 semesters (including summers), they will be charged out-of-state tuition on any additional hours.
4. See Graduate Catalog [http://catalog.tamu.edu/] for additional information.

A dissertation written on original research as directed by the student’s advisory committee is required. The dissertation seminar will be announced for public attendance prior to the final exam.
COURSE INVENTORY AND COURSE DESCRIPTIONS FOR GRADUATE DEGREE PROGRAMS

(Lecture-Lab hours) Credits offered. Course offered: Fall = I; Spring = II, Summer = S

ANSC 601. General Animal Nutrition. (3-0) Credit 3. I
Instructor: Dr. Tryon Wickersham
Comparative nutrition of animal species contrasting digestive, metabolic and physiological functions involved in processing and using nutrients.
Prerequisite: ANSC 303 or ANSC 318 or equivalent. Cross-listed with NUTR 601.

ANSC 602. Energetics of Metabolism and Growth. (3-0) Credit 3. I
Instructor: Dr. Gordon Carstens
Current fundamental concepts in protein and energy metabolism relating to nutrients required for maintenance, growth and development of animals.
Prerequisite: BICH 410 or approval of department head. Cross-listed with NUTR 602.

ANSC 604. Ruminant Nutrition. (3-0) Credit 3. I
Instructor: Dr. Luis Tedeschi
Current concepts in anatomy, physiology of digestion and metabolism in ruminant nutrition and their relationships to nutrition practice and research with emphasis on ruminants.
Prerequisites: ANSC 601 or ANSC 602, BICH 411 or BICH 603 and/or approval of department head.

ANSC 605. Advancements in Beef Cattle Production. (3-0) Credit 3. I
Instructor: Dr. Andy Herring
Current knowledge and concepts in production of lean beef; review of research in beef cattle production, breeding, nutrition, reproduction and economics.
Prerequisites: ANSC 406 or ANSC 408.

ANSC 607. Physiology and Biochemistry of Muscle as Food. (3-0) Credit 3. I
Instructor: Dr. Steve Smith
Biochemical, histological, anatomical and physical characteristics of muscle cells and factors associated with transformation of muscle cells into meat.
Prerequisite: BICH 410 or approval of department head. Cross-listed with FSTC 607.

ANSC 608. Beef Cattle Management. (3-0) Credit 3. II
Instructor: Dr. Jason Sawyer
Current knowledge of beef cattle ranch and feedlot production systems; nutrition, management, breeding, body composition, economics, health, pollution and sanitation control.
Prerequisite: ANSC 601 or ANSC 406.

ANSC 609. Physiology of Growth and Stress in Livestock. (3-0) Credit 3. I
Instructor: Dr. Tom Welsh
Basic biochemical, physiological and endocrine mechanisms involved in processes regulating metabolism, growth and stress in livestock; current research and management principles/concepts useful to study growth and stress physiology; anabolic agents, anti-stress agents, immunoneutralization; transgenic livestock.
Prerequisite: BICH 410 or BICH 411 or approval of instructor.

ANSC 610. Applied Animal Ethology. (2-2) Credit 3. II
Instructor: Dr. Courtney Daigle
Review and evaluation of ethological research and principles as they relate to the management of animals; research principles and techniques used in studying animal behavior; psychological and physiological aspects of stress; topics of interest to students; visits to laboratories of researchers studying aspects of animal behavior/ethology.
Prerequisite: Graduate classification or approval of instructor.

ANSC 611. Equine Nutrition. (3-0) Credit 3. I
Instructor: Dr. Jessica Leatherwood
Review and evaluation of current research in equine nutrition; principles of digestive physiology and nutrition unique to equine species; comparative digestion; integration of scientific principles into feeding management systems to enhance productivity, health and longevity of the equine.
Prerequisite: ANSC 601 or approval of department head.

ANSC 612. Equine Reproduction. (3-0) Credit 3. I
Instructor: Dr. Martha Vogelsang
Review of current research relating to equine reproductive physiology and endocrinology; concepts from current
research in equine reproduction to develop integrated reproductive management systems for horses.

**Prerequisites**: ANSC 433; graduate classification.

**ANSC 613. Protein Metabolism. (3-0) Credit 3. I**

**Instructor**: Dr. Guoyao Wu

Basic concepts and recent advances in protein metabolism in animals with emphasis on physiological and nutritional significances; discussion of protein digestion; absorption of peptides; absorption, synthesis and degradation of amino acids; hormonal and nutritional regulation of protein turnover; determination of protein quality and requirements.

**Prerequisite**: BICH 411 or BICH 601 (or equivalent) or approval of instructor. Cross-listed with NUTR 613.

**ANSC 614. Maximum Likelihood Estimation of Genetics. (3-0) Credit 3.**

**Instructor**: Dr. Clare Gill

Theoretical and analytical approaches to the application of maximum likelihood for the estimation of parameters under linear and nonlinear models; single and polygene genetic models including Hardy-Weinberg equilibrium, linkage analysis and quantitative trait loci detection.

**Prerequisites**: GENE 603; STAT 651 and STAT 652 or STAT 601. Cross-listed with GENE 614.

**ANSC 615. Comparative Ruminant Animal Nutrition. (3-0) Credit 3. S**

**Instructor**: Dr. Luis Tedeschi

Contrast two scenarios of ruminant production in Brazil; the effects of globalization on the two different production systems.

**Prerequisites**: ANSC 107, ANSC 108.

**ANSC 616. Equine Exercise Science. (3-0) Credit 3. II**

**Instructor**: Dr. Sarah White

Review and evaluation of current research in equine exercise science; physical, physiologic and metabolic adaptation to physical training in the horse; bioenergetics; nutritional requirements; problems in the hard-working horse; management and training approaches to delay fatigue in race/performance horses.

**Prerequisites**: ANSC 420; BICH 411; graduate classification.

**ANSC 618. Lipids and Lipid Metabolism. (3-0) Credit 3. I**

**Instructor**: Dr. Steve Smith

Chemical nature of various classes of lipids and lipid-derived hormones; absorption and metabolism of fatty-acids and lipids; regulation of lipid biosynthesis and obesity; relationship between lipid metabolism and cholesterol homeostasis; lipids as hormones.

**Prerequisite**: BICH 410 or approval of instructor. Cross-listed with NUTR 618.

**ANSC 619. Physiological Chemistry of Livestock Species. (3-0) Credit 3. II**

**Instructor**: Dr. Steve Smith

Integration of biochemical concepts with physiological chemistry and intermediary metabolism of livestock species; unique aspects of absorption and cellular metabolism of carbohydrates, lipids and proteins in livestock species; regulation of cellular nutrient metabolism in livestock species.

**Prerequisite**: BICH 410 or approval of instructor.

**ANSC 621. Issues in the Equine Industry (3-0) Credit 3. II**

**Instructor**: Dr. Jessica Leatherwood

Integration of cumulative knowledge acquired in the equine science curriculum to demonstrate critical thinking and communication skills to address critical issues in the equine industry.

**Prerequisite**: Approval of instructor or enrollment in master of equine industry management program.

**ANSC 622. Research Methods in Animal Science (2-0) Credit 2. S**

**Instructor**: Dr. Jason Sawyer

Development of the conceptual framework of research; study of software programs for data recording, management, and analysis; evaluation of specific experimental designs historically used in animal experiments; discussion of interpretations found in peer-reviewed research publications; data presentation for scientific meetings and publication; the peer review process and publication in technical journals.

**Prerequisites**: STAT 651; STAT 652.

**ANSC 623. Precision Diet Formulation. (2-2) Credit 3. II**

**Instructors**: Dr. Luis Tedeschi; Dr. Gordon Carstens

Theoretical and applied principles associated with precision feeding and diet formulation to optimize nutrient requirements; optimization using least-cost formulation, ingredient inventory, farm and feed mill management, and
nutrient management of nonruminants (poultry, swine, horse, and fish) and ruminant animals (beef and dairy).

Prerequisite: POSC 411 or ANSC 318. Cross-listed with POSC 625.

ANSC 624. Mammalian Developmental Genetics. (3-0) Credit 3.

Instructor: Dr. Penny Riggs

Genetic control of developmental pathways responsible for pattern formation and morphogenesis in mammals; genetic networks and genome organization; significance of genetic regulatory networks as a source of evolutionary diversity.

Prerequisites: GENE 301 or 320; BICH 410/411 or equivalent.

ANSC 626. Analyses of Gene Expression. (1-3) Credit 2.

Instructor: Dr. Nancy Ing

Proficiency in handling DNA and RNA gained during exercises used routinely in analyses of gene expression; RNA preparation and analysis on Northern blots; in vitro transcription and polyacrylamide gel analysis of nucleic acids; sub-cloning and mRNA quantitation using polymerase chain reaction.

Prerequisites: GENE 450 or approval of instructor; radiation safety training. Cross-listed with GENE 626.

ANSC 627. Carcass Composition and Quality. (3-0) Credit 3.

Instructor: Dr. Jeff Savell

Survey of scientific literature regarding carcass composition; quality and palatability of meat animals; factors that affect differences among animals of the same specie; impact on value and usefulness.

Prerequisite: Graduate classification.


Instructor: Dr. James Sanders

Concepts from Mendelian, population and quantitative genetics; heritability, selection response, selection criteria, selection index, genetic relationship, inbreeding, mating systems, hybrid vigor and genetic-environmental interaction applied to livestock breeding and to production systems; interactions between genetics and nutrition, reproduction, production and management for both established concepts and recent trends emphasized according to special interests of students.

Prerequisite: ANSC 305 or POSC 414.

ANSC 629. Applied Animal Genomics. (3-0) Credit 3.

Instructor: Dr. Clare Gill

Theory and application of genomics by livestock industries; consideration of genetic markers, gene mapping methods, genome analysis and emerging technologies such as microarrays, transgenesis, cloning and marker assisted selection; exposure to bioinformatic tools for genomics.

Prerequisites: GENE 603.

ANSC 630. Physiology of Reproduction I. (4-0) Credit 4.

Instructors: Dr. Fuller Bazer; Dr. Tom Welsh; Dr. Rodolfo Cardoso

Embryological, physiological, hormonal, cellular and molecular mechanisms involving the endocrine and reproductive systems of mammals; emphasis on domestic livestock, rodents and humans; current theories evaluated and discussed using information from recent scientific publications.

Prerequisites: ANSC 433; BICH 411 or equivalent.

ANSC 631. Physiology of Reproduction II. (4-0) Credit 4.

Instructor: Dr. Fuller Bazer

Embryological, physiological, hormonal, cellular and molecular mechanisms involving the endocrine and reproductive systems of mammals; emphasis on domestic livestock, rodents and humans; current theories evaluated and discussed using information from recent scientific publications.

Prerequisite: ANSC 630 or approval of instructor.


Instructor: Dr. David Forrest

Concepts from current research in physiology of reproduction evaluated and applied for enhancement of livestock production efficiency; ovulation control, embryo transfer, multiple births and control of parturition.

Prerequisite: ANSC 433 or equivalent or approval of department head.

ANSC 636. Texas Panhandle Beef Production Tour. S

Instructor: Dr. Tryon Wickersham

Facets of beef production from cow/calf operations to retail product; experiential knowledge of technologies and practices to enhance efficiency to enlighten students regarding the array of career opportunities in the beef
production industry.

Prerequisite: Graduate classification.

**ANSC 637. Food Safety: Policy, Regulations and Issues. (2-2) Credit 3. II**

**Instructor:** Dr. Kerri Gehring

Designed to explore the complexities of the regulations governing the production of foods of animal origin in the United States; requirements for countries importing products into the United States; federal, state and local requirements will be addressed.

Prerequisite: ANSC/FSTC 457/657 or instructor approval.

**ANSC 638. Prediction of Genetic Merit. (3-0). Credits 3. I**

**Instructor:** Dr. David Riley

Mixed linear models and best linear unbiased prediction for genetic evaluation.

Prerequisite: GENE 613.

**ANSC 647. Technology of Meat Processing and Distribution. (3-0) Credit 3. I**

**Instructor:** Dr. Rhonda Miller

Quantitative and qualitative characteristics of meat and meat products as related to food technology processing operations; manufacturing, preservation, packaging and merchandising. Cross-listed with FSTC 647.

Prerequisite: Graduate classification.

**ANSC 651. Current Issues in Animal Agriculture. Credit 1 to 4.**

**Instructors:** Dr. Russell Cross and Dr. Gary Smith.

Projecting a professional image and utilizing communication skills to describe animal agriculture; strengths and weaknesses of animal agriculture.

Prerequisite: Graduate classification.

**ANSC 654. Molecular Endocrinology. (3-0) Credit 3.**

**Instructor:** Dr. Nancy Ing

Structure-function relationships of hormones, their receptors and biologic activities.

Prerequisites: BICH 410 or equivalent; BIOL 649 or VTPP 653; or approval of instructor. Cross-listed with VTPP.

**ANSC 657. Hazard Analysis and Critical Control Point System. (3-0) Credit 3. I**

**Instructor:** Dr. Kerri Gehring

Examination of the Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices (GMP) and standard operating procedures (SOP) development; team-building and implementation into industry operations. Cross-listed with NFSC 657.

Prerequisite: Graduate classification.

**ANSC 667. Industrial Processed Meat Operations. (2-2) Credit 3. II**

**Instructor:** Dr. Wes Osburn

Application of scientific principles and business practices to manufactured meat products; interrelationships among marketing, manufacturing, product development, regulatory compliance and quality assurance in commercial processed meat operations.

Prerequisite: Approval of instructor. Cross-listed with NFSC 667.

**ANSC 670. Quality Assurance for the Food Industry. (3-0) Credit 3. I**

**Instructor:** Dr. Wes Osburn

Principles of food system process control; statistical process control (SPC); tools required to assure uniform communication and understanding of quality assurance systems.

Prerequisite: Graduate classification.


**Instructor:** Dr. Davey Griffin

Introduction to fundamental concepts of meat animal myology as they pertain to industrial meat science; standard formats for scientific nomenclature in the context of meat science and industry related terminology; fabricated cuts used to illustrate myology concepts.

Prerequisite: Graduate classification.

**ANSC 681. Seminar. (1-0) I, II**

**Instructors:** Dr. Jason Gill; Dr. Chris Kerth

Important current developments in the field of animal science; review of current literature and presentation of papers on selected animal science topics.
Prerequisite: Graduate classification in Animal Science.

**ANSC 684. Professional Internship. Credit 1 or more each semester.**
Experience in the application of formal training to a commercial operation under supervision of the operations manager and a designated faculty member. The student will investigate a matter of mutual interest to the enterprise manager and to Texas A&M University; will collect, analyze and interpret the data and report the results in a professional paper approved by his or her graduate committee.

Prerequisite:

**ANSC 685. Directed Studies. Credit 1 to 4 each semester.**
Advanced studies in animal science problems and procedures. Problems assigned according to experience, interest and needs of individual student.

Prerequisite: Approval of department head.

**ANSC 687. Sensory Evaluation of Foods. (2-2) Credit 3.**
Instructor: Dr. Rhonda Miller
Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques.

Prerequisite: CHEM 222 or CHEM 228.

**ANSC 691. Research. Credit 1 or more each semester.**
Investigations leading to student's thesis or dissertation in fields of animal production, meats, wool and mohair, nutrition, inheritance of farm animals and physiology of reproduction.

Prerequisite:

**ANSC 697. Applied Microbiology for Foods of Animal Origin: Processing, Sanitation & Sanitary Design. (3-0) Credit 3.**
Instructor: Dr. Matt Taylor
Application of basic food microbiology knowledge and principles to food production processes and products: sources of microbiological contamination and their impact on food safety and spoilage; application of sanitary design and validation; testing and auditing to monitor and trouble-shoot the process.

Prerequisite: NFSC 326 or NFSC 606 or equivalent. Cross-listed with NFSC 697.

### Graduate Admissions Criteria

A formal application is required from a person seeking admission to graduate studies for M.Ag., M.S. or Ph.D. degree programs in Animal Breeding (ANBR), Animal Science (ANSC), Equine Industry Management (EQIM) or Physiology of Reproduction (PREP). The statewide Texas Common Application found at [www.applytexas.org](http://www.applytexas.org) is used to apply to Texas A&M University or any other public university in the state of Texas. The overall admission criteria for Texas A&M University is based on the entire record of the applicant and the availability of departmental resources. Consideration is given to:

- Holding an accredited baccalaureate degree from a college, institution or university of recognized standing, or its equivalent guarantees consideration for admission
- GRE scores
- Transcripts from all colleges/universities attended
- GPA for the last 60 hours of coursework
- Letters of recommendation (3)
- Professional and/or academic experience
- Ability to pursue advanced study and research satisfactorily
- Adequate preparation to enter graduate school in the specific discipline or field of study
- Statement of Purpose essay

Advising of graduate students is primarily the responsibility of the student's M.Ag., M.S. or Ph.D. advisory committee chair, with the student's advisory committee having secondary responsibility. Additional support is provided by one graduate advisor located in the advising office as well as the Associate Head for Academic Programs. Each Advisory Committee consists of no fewer than three faculty members for M.Ag. and M.S. students and no fewer than four faculty members for Ph.D. students. At least one member of a graduate student's committee must be a member of another department. The student's thesis advisor chairs the Advisory Committee, and each student develops a degree plan in consultation with their Advisory Committee. It is common for students to have co-chairs for advisory committees, usually because of joint research projects between faculty members inside or outside the Department.
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Data Compiled by OIEE/DARS - July 2018
Number of Degrees Awarded per Year (Most Recent 5 Years)

Number of degrees per year
Table 4.2 provides the number of undergraduate degrees and Table 4.3 provides the number of graduate degrees awarded by major for the most recent five years.

Table 4.2 Number of undergraduate degrees awarded with average GPA at graduation.

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Data Compiled by OIEE/DARS - July 2018

Table 4.3 Number of graduate student degrees awarded by major 2012-2017.

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Data Compiled by OIEE/DARS - July 2018
Table 4.4  Undergraduate and graduate student average time to degree (most recent five years).

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</tr>
<tr>
<td></td>
<td></td>
<td>EQIM</td>
<td>Graduate</td>
<td>4</td>
<td>1.88</td>
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</table>

Data Compiled by OIEE/DARS - July 2018
*BIOT (Biotechnology), GENE (Genetics) and FSTC (Food Science Technology) reports data for graduate students enrolled in those degree programs with ANSC faculty serving as chair or cochair of their committee.
Average Time to Degree

Table 4.5  Time to degree averages for undergraduate and graduate students (most recent five years).

<table>
<thead>
<tr>
<th>Summary Table</th>
<th>5 years</th>
<th>Time to Degree</th>
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<tr>
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Data Compiled by ANSC Associate Head Academic Programs

Academic Enhancements/High-Impact Opportunities for Students

ANIMAL SCIENCE EXPERIENCE - ANSC 399
Beginning with the freshman class of 2018, all ANSC majors are required to participate in at least one animal science experience. This experience includes participation in an approved high-impact learning practice; reflection on professional outcomes from animal science body of knowledge; documentation and self-assessment of learning experience at mid and final curriculum points.

ACADEMIC ENHANCEMENTS/HIGH-IMPACT OPPORTUNITIES FOR STUDENTS
High-impact learning occurs when students are actively engaged in the education process beyond the classroom, for application in their personal and professional lives. High-impact learning immerses the student in hands-on experiences and teaches the ability to work closely with diverse individuals. Students engaged in high-impact learning often see improvement in grade point averages and are more highly vested in their education. The revised Animal Science undergraduate curriculum requires all majors to participate in some type of Animal Science experience, which may include any of the following high impact opportunities:

- Study Abroad
- Internships
- Undergraduate Research
- Competitive Judging Teams
- Field Trips
- Learning Communities
- Collaborative Projects
- Diversity/ Global Learning
- Honors Programs

The Department of Animal Science focuses on four high-impact experiences: study abroad, internships, undergraduate research and judging teams.
INTERNSHIPS
Graduates of the Department of Animal Science are in high demand. Often, employers contact our offices looking for students who can fill internship roles in their companies. Employers are seeking students who have participated in at least one internship during their undergraduate career. Generally, undergraduate internships are paid and can be obtained in a variety of fields within the livestock or allied animal agriculture industries.

UNDERGRADUATE RESEARCH
Students are encouraged to begin seeking research opportunities after their first or second semester at Texas A&M University. Students who participate in undergraduate research opportunities can receive course credit as well as compete in undergraduate research competitions on campus or through professional organizations.

STUDY ABROAD
The Department of Animal Science encourages all students to participate in a study abroad program during their time at the University. As part of this program, students enroll in either 3 or 6 credit hours that may count toward their degree plan. These courses also satisfy the university core curriculum International and Cultural Diversity credits required for graduation. Available courses include:

- ANSC 415 Brazil: Comparative Ruminant Nutrition
- ANSC 495 – International Agriculture and Animal Production
Assessment of Student Learning Outcomes (all degree levels)

The Department of Animal Science conducts an annual assessment of its undergraduate degree program (includes production/industry option and science option), masters degree programs (ANBR, ANSC, PREP) and doctoral degree programs (ANBR, ANSC, PREP). The masters of equine management (EQIM), and undergraduate certificate programs in equine science and meat science came under assessment during the 2016-17 assessment cycle. The Department seeks continuous assessment of our academic programs by defining the mission, developing student learning outcomes and measures (targets), collecting data (primarily through the use of student surveys) analyzing the data to determine if the learning outcomes (targets) have been met, developing action plans to address targets that were either partially or not met and providing detailed analysis to determine progress, challenges and opportunities. The detailed assessment reports for all degree and certificate programs from 2013-18 are found in the Appendix starting on pages 381-437.

We conducted an extensive undergraduate curriculum revision that began in 2014 and was approved by the University for implementation during the 2018/19 catalog year. This effort generated new program learning outcomes, student learning outcomes and performance indicators. An assessment plan is currently being developed for the new curriculum in conjunction with the TAMU Center for Teaching Excellence. The graduate curriculum is being evaluated by our ANSC Graduate Program Committee to review and reassess our degree requirements in order to revise current program learning outcomes, student learning outcomes, performance indicators and course offerings in a similar manner used for our recent undergraduate curriculum revision.

This Self-Study will report assessment data from 2016-17. The assessments for all degree programs are: ANSC B.S., Certificate Program Equine Science, Certificate Program Meat Science, M.S.-ANBR, ANSC, PREP, M.Ag.-EQIM; Ph.D.-ANBR, ANSC, and PREP.
Mission / Purpose
The mission of the Department of Animal Science is to improve lives through discovery, integration, dissemination and application of science-based knowledge of animals and animal products. The department offers dynamic and challenging undergraduate programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who contribute to the industry or continue post-graduate education.

Goals
- **Knowledge base**
  Obtain a comprehensive understanding of the livestock and equine industries to include management practices, nutrition, breeding and genetics, physiology, welfare, biosecurity, and nutrient management.

- **Complex Problem Solving**
  Animal Science graduates will develop complex problem solving skills through critical thinking activities.

- **Communication**
  Animal Science graduates will build and maintain both written and oral communication skills necessary to contribute to the industry.

- **Professional Development**
  Enhancement of professionalism of student in order to build skills to contribute to industry.

Student Learning Outcomes (SLO), Measures, Targets, Findings, and Action Plans

SLO: **Communication**
Demonstrate competent written and oral communication skills.

- **Measure: Satisfaction of undergraduate education**
  Feedback is obtained from senior level students regarding their undergraduate education and how prepared they feel to work in the livestock or equine industry.

  Source of Evidence: Exit interviews with grads/program completers

- **Target:** At least 70% of Professors teaching ANSC courses will achieve an average student evaluation rating of 3.4 on a 4.0 scale (senior exit surveys).

- **Findings (2016-2017) - Target: Not Reported This Cycle**
  This data was not collected/analyzed for the 2016-2017 academic year.

- **Measure: Supervisor Evaluation from Internship**
  For students who participate in an internship, they receive an evaluation from their internship supervisor.

  Source of Evidence: Field work, internship, or teaching evaluation, Supervisor's Evaluation of Student Performance During Internship Program

- **Target:** Students receive a rating of 3 (Good) on a scale of 1-4 (with 4 being Excellent) on the Supervisor Evaluation of Students Communication Skills in both Writing and Speaking.

- **Findings (2016-2017) - Target: Met**
  The supervisors evaluation of students communication skills in both speaking and writing show that 74% of students achieve a rating of 5 (Excellent) and 16% of students achieve a rating of 4 (Good).
According to the evaluations, students have an Average Likert score of 3.75 (on a 5-point scale) for Communication Skills - Speaking and an Average Likert score of 3.76 (on a 5-point scale) for Communication Skills - Writing.

**SLO: Exposure to international livestock industry**
To expand students' knowledge and understanding of the impact of the animal agriculture industry on global society (economics, culture, etc.).

- **Measures: Study Abroad Participation Report**
  This report summarizes student enrollment in study abroad during their undergraduate career.
  Source of Evidence: Activity volume

- **Target:** 10% of Animal Science undergraduate students will complete an international experience.

- **Findings (2016-2017) - Target: Met**
  According to the survey given to graduating seniors, 16.27% (34/209) participated in an international experience during their undergraduate career.

**SLO: Knowledge Base**
Demonstrate a comprehensive understanding of the animal agriculture industry to include management practices, nutrition, animal products, breeding and genetics, physiology, welfare, biosecurity, and nutrient management.

- **Measure: ANSC 433**
  Performance on a specific assignment to research literature, synthesize evidence and integrate concepts concerning a selected reproductive management technology. The assignment is scored using a rubric that is distributed in advance to students.
  Source of Evidence: Performance (recital, exhibit, science project)

- **Target:** 70% of students enrolled in ANSC 433 will score a B or higher on the rubric to evaluate the scientific evidence for efficacy of a reproductive management technology.

- **Findings (2016-2017) - Target: Not Reported This Cycle**
  This data was not collected/analyzed for the 2016/2017 academic year.

- **Measure: Satisfaction of undergraduate education**
  Feedback is obtained from senior-level students regarding their undergraduate education and how prepared they feel to work in the livestock or equine industry.
  Source of Evidence: Exit interviews with grads/program completers

- **Target:** "Overall, I feel that my undergraduate education prepared me for the livestock or equine industry" on ANSC 481 Seminar exit surveys. Average at least 4 on a 5-point Likert scale. (4 = agree).

- **Findings (2016-2017) - Target: Not Reported This Cycle**
  This data was not collected for the 2016-2017 academic year.

- **Measure: ANSC 433 Knowledge Base Test**
  ANSC 433 will administer a Pre-Test at the start of the course and a Post-Test at the end of the course to evaluate the knowledge of the students as they progress through the course.
  Source of Evidence: Faculty pre-test / post-test of knowledge mastery

- **Target:** Students score 14 out of 20 on the Post-Test in ANSC 433 which represents a passing grade of 70%.
• **Findings (2016-2017) - Target: Not Reported This Cycle**
   This information has not been collected/analyzed for the 2016-2017 academic year.

• **Measure: Supervisor Evaluation from Internship**
   For students who participate in an internship, they receive an evaluation from their internship supervisor.
   Source of Evidence: Field work, internship, or teaching evaluation, *Supervisor's Evaluation of Student Performance During Internship Program*

   • **Target:** At least 80% of students receive a rating of 4 (Excellent) on a scale of 1-4 on the Supervisor Evaluation of Students Overall Skills for the Industry.

• **Findings (2016-2017) - Target: Met**
   Supervisors evaluate 44 students on their overall skills for the industry and 37 (84%) students receive a rating of 4 (Excellent). The students receive an overall Average Likert score of 3.8 (on a 4-point scale).

**SLO: Curiosity and Lifelong Learning**
Students who participate in an Animal Science Experience (internships, undergraduate research, student organizations, judging teams, study abroad experiences, etc.) will become more engaged in the Animal Science discipline and create a desire for lifelong learning.

• **Measure: Student Activities**
   This information is obtained from an Exit Survey sent out to all Animal Science graduating seniors during the semester of graduation.
   Source of Evidence: Exit interviews with grads/program completers

   • **Target:** 30% of students will participate in departmental/college student activities (i.e. judging teams, student organizations, etc.).

• **Findings (2016-2017) - Target: Met**
   Students are asked to indicate their participation in departmental/college student activities during their time at Texas A&M. Of those students surveyed, 56% (118/209) indicated participation in departmental activities/organizations. Also, 16% (34/209) participated in one or more judging teams. Seven percent (14/209) indicated participation in college organizations/activities. In addition, 63% (132/209) indicated participation in organizations/activities at Texas A&M outside of the College of Agriculture and Life Sciences.

• **Measure: ANSC 485/ANSC 291/ANSC 491**
   Survey of Animal Science graduating students to quantify enrollment in ANSC 485 Directed Studies, ANSC 291 Research or ANSC 491 Research during their undergraduate degree program.
   Source of Evidence: Exit interviews with grads/program completers

   • **Target:** At least 40% of students will participate in Directed Studies (ANSC 485) and/or take advantage of undergraduate research opportunities (ANSC 291 or 491) on or off campus during their undergraduate degree program.

• **Findings (2016-2017) - Target: Met**
   During the 2016-2017 academic year, 115/209 (55%) of Animal Science graduating seniors surveyed indicated they acquired research experience through enrollment in ANSC 291, 485 and/or 491. Twenty-five of 209 Animal Science undergraduate students (12%) indicated they acquired research experience through enrollment in ANSC 291 - Research. Forty-four of 209 Animal Science undergraduate students (21%) indicated they acquired research experience through enrollment in ANSC 485 - Directed Studies. Forty-six of 209 Animal Science undergraduate students (22%)
indicated they acquired research experience through enrollment in ANSC 491 - Research.

- **Measure: Supervisor Evaluation from Internship**
  Students who participated in an internship received an evaluation from their internship supervisor.
  Source of Evidence: Field work, internship, or teaching evaluation

- **Target:** Students received an average rating of 3.5 on a scale of 1-4 (with 4 being ‘Excellent’) on the Supervisor Evaluation of Students in the area of Curiosity and Lifelong Learning.

- **Findings (2016-2017) - Target: Met**
  The supervisors’ evaluations of students’ ability to learn new operations reflect that 89% of students achieved a rating of 4 (‘Excellent’) with an average Likert score of 3.89 (on a 4-point scale).

**Details of Action Plans for This Cycle**

**Development of Survey Tool for Post-Graduates**
After reviewing our findings for job placement of our graduates, we are seeking to increase the accuracy of assessment among students who found employment or postgraduate study by developing new employment survey questions for postgraduates. Currently, we use a survey tool for graduating students. However, several students are still under review for admission to professional or graduate schools or are not yet actively seeking employment. This postgraduate survey will be useful to gain feedback from students on suggested changes that may need to be made to our existing degree program. This information and feedback will be used to evaluate our current and upcoming new revised curriculum.

- **Established in Cycle:** 2011-2012
- **Implementation Status:** Planned
- **Priority:** High

**Increasing Communication Skills of Students in ANSC 402**
According to our assessment data, students are meeting the set target scores in the area of communication skills, but more focused efforts in enhancing these skills of our Animal Science graduates is desired. Currently, we incorporate assignments in the ANSC 402 - Exploring Animal Industries course to emphasize communication skills and knowledge. Students are being taught necessary skills and have an opportunity to participate in actual communication-based scenarios and interviews. However, due to the pending changes to our degree program curriculum, core courses have been identified to enhance our students learning skills. ANSC 402 is an elective course, therefore, incorporating essential communication skills throughout our core curriculum is the desired approach.

- **Established in Cycle:** 2014-2015
- **Implementation Status:** On-Hold
- **Priority:** High

**Internships**
Increased emphasis will be placed on improving overall student performance during the internship. We currently use an evaluation form that addresses many questions related to student learning, but the form is completed by hand and either submitted by mail or scanned to email. Updating the evaluation to an online format will allow us to capture more accurate data on our students and allow us to incorporate more student-learning questions relating to their communication skills, work ethic, and overall knowledge of the industry. We would like to survey the employers of top companies who hire our students and ask them questions such as: How are our students’ communication skills? How diverse are our students in the workplace? What recommendations do you have to better educate and prepare our students for employment? Efforts will continue to identify methods to better prepare our students for internships (current degree program and Animal Science Experiences (redesign degree program) and evaluate the impact on student performance.

- **Established in Cycle:** 2014-2015
- **Implementation Status:** Planned
- **Priority:** Medium
**Job Placement of Graduates**

Based on feedback we received from the graduating senior exit survey, the Department must remain proactive in communicating career and job opportunities for Animal Science students prior to graduation to increase the percentage employed prior to or upon graduation. Increased emphasis on internships is a key approach. During the current assessment cycle, we did not meet our target of at least 60% of graduates who were actively seeking employment, will be employed or continuing their education at the time of graduation. This was established in cycle: In 2009-2010, Animal Science graduating seniors surveyed indicated 100 (48%) of the students are employed or continuing their education at the time of graduation. Of the 140 students seeking employment, 32 (15%) were employed at the time of the survey. Of the 88 students applying for admission to a professional or graduate school program, 37 (42%) were accepted into the program. However, there were 44 (50%) students still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey, there were 68 (33%) students currently not seeking employment for various reasons. The Department will increase its efforts to communicate/distribute employment opportunities by distributing opportunities via our undergraduate listserve, giving announcements in Animal Science courses, encouraging participation in the College ACE Day Career Fair (recruiting fair for jobs and internships), and encouraging students to seek assistance by visiting the Career Center. An online Job Board has been created but needs to be linked from our Department website. The Department is also considering the creation of career seminars each semester to promote career and employment options for Animal Science graduates.

**Established in Cycle:** 2014-2015  
**Implementation Status:** Planned  
**Priority:** Medium

**Animal Science Undergraduate Curriculum Redesign**

The Animal Science Undergraduate Curriculum Committee developed new student learning outcomes for required courses, identified and launched development of new course syllabi, and identified assessment touch points for our redesigned Animal Science Undergraduate Curriculum. Establishing a redesigned introductory Animal Science course and Senior Capstone Course replaces the previous assessment Action Plan milestones (ANSC 107 and ANSC 433 Honors pre and post-tests) noted as "Finished." Goal is to upload new curriculum in CARS in September 2017. The Undergraduate Curriculum Committee will develop the revised/enhanced assessment plan requirements for the redesigned curriculum which will be uploaded into WEAVEonline.

**Established in Cycle:** 2015-2016  
**Implementation Status:** In-Progress  
**Priority:** High

**Internships**

Survey findings indicate that we are not meeting the target goal for preparing students for internships. Supervisors' evaluation of students participating in internships is not as good as expected. Student preparation must include encouragement (or requirement) to attend workshops at the Career Center that focuses on professionalism, interview skills and dress, resume writing, and various other topics. Previous efforts to encourage participation in internships resulted in a zero credit hour option for students to enroll in the ANSC 494-Internship allows students to participate in internships without having to sign up for academic credit. The Animal Science advising staff will continue to work with students to encourage them to pursue internships by working with individual students on their degree plans and incorporating appropriate internships into their academic plan. The newly revised core curriculum requires all ANSC students to participate in one Animal Science Experience which includes but is not limited to - internships.

**Established in Cycle:** 2015-2016  
**Implementation Status:** Planned  
**Priority:** High

**Knowledge Based Test for Animal Science courses**

In past assessment cycles, we evaluated students' knowledge in the Honors section of ANSC 433 - Reproduction of Farm Animals by administering a pre-test at the beginning of the semester and a post-test at the end of the semester. This was not an accurate representation of our student population. Our plan is to administer a
knowledge-based test to all students who enroll in ANSC 433 and communicate to them areas of deficiency. In addition, we will consider administering a pre-test and a post-test to the ANSC 107 - Introduction to Animal Science which will evaluate Animal Science and non-Animal Science students. The pre-test will highlight areas for student learning and the post-test data will be shared with students to show deficiencies.  

**Established in Cycle:** 2015-2016  
**Implementation Status:** Finished

### High Impact Experience Requirement

Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outcome to increase employment rates for our graduating seniors. We believe that giving students more actual work experience will not only make them more employable, but will enhance their learning in the areas of industry knowledge (SLO4) and curiosity/lifelong learning (SLO6). Therefore, we plan to revise curriculum to include a required Animal Science Experience that contains, internships, research, work and/or Study Abroad experiences. Based on previous evaluation surveys, we continue to offer these future Animal Science Experiences and current internships with a zero credit hour course option. The desired end state is to increase student participation in these experiences and help students enhance learning through high-impact experiences. Our academic advisors will be more proactive in discussing how an internship can fit into a student's degree plan and assisting the student by providing suggestions on possible internships relating to the students career plans.  

**Established in Cycle:** 2016-2017  
**Implementation Status:** Planned  
**Priority:** High

### Analysis

Our action plan seeks to increase the accuracy of assessment data among students who find employment or postgraduate study by developing a survey tool for postgraduates. This postgraduate survey will also be useful when seeking suggestions and feedback from students on recommended changes to our current degree program and making adjustments to our current efforts in redesigning our curriculum for the future. We will continue to look for better ways to distribute the survey to our former students in order to maximize student response rates. As stated in our action plan, we need to focus on improving our target of 60% employment of our graduating seniors. During our current cycle, Animal Science graduating seniors surveyed indicate 100 (48%) are employed or continuing their education at the time of graduation. A key success metric for student learning is that during the 2016-2017 academic year, 115/209 (55%) of Animal Science graduating seniors surveyed acquired research experience through enrollment in ANSC 291, 485 and/or 491. We seek to increase that percentage during the upcoming assessment cycle.
Mission / Purpose
The Undergraduate Certificate in Equine Science is designed to provide specialized instruction and training in equine science. The certificate program is intended to prepare ANSC undergraduate students for a variety of careers in the equine industry by providing students with a core set of essential skills, knowledge and competencies sought by the equine industry.

Goals
• Development of Technical Expertise
  Students participating in the Equine Science Certificate program will develop an expanded knowledge base, advanced skills and competencies in equine behavior and training, nutrition, health, reproduction and management. Students must participate in one Animal Science Experience (internship or research).

• Student Employment Rate
  Equine certificate program students will be tracked to collect data (via established ANSC undergraduate student survey assessment) on employment in the equine industry.

Student Learning Outcomes, Measures, Targets, Findings, and Action Plans
SLO: Develop Expertise
Development of Equine Skills, Competencies and Expertise

• Measure: Internship Evaluation
  Students pursuing the Equine Science certificate will receive an evaluation from their internship supervisor.
  Source of Evidence: Field work, internship, or teaching evaluation

• Target: 80% of students pursuing the Equine Science certificate will achieve a supervisor evaluation of satisfactory or better.

• Findings (2016-2017) - Target: Not Met
  First time for this program to be assessed – data not reported.

• Measure: Internships
  Equine Science Certificate students are required to have at least one internship.
  Source of Evidence: Field work, internship, or teaching evaluation

• Target: 100% of Equine Science Certificate students will complete an internship experience with 100% "met standards" and 50% achieving "exceeded standards" from supervisor evaluations.

• Findings (2016-2017) - Target: Not Met
  First time for this program to be assessed – data not reported.

SLO: Employment Rate
Employment rate of students completing the Equine Science Certificate program.

• Measure: Internship Evaluation
  Students pursuing the Equine Science Certificate will receive an evaluation from their internship supervisor.
  Source of Evidence: Field work, internship, or teaching evaluation

• Target: 80% of students pursuing the Equine Science Certificate will achieve a supervisor evaluation of satisfactory or better.
• **Findings (2016-2017) - Target: Not Met**
  First time for this program to be assessed – data not reported.

  **Measure: Internships**
  Equine Science Certificate students are required to have at least one internship.
  Source of Evidence: Field work, internship, or teaching evaluation

• **Target:** 50% of Equine Science Certificate students will find employment in the equine industry.

• **Findings (2016-2017) - Target: Not Met**
  First time for this program to be assessed – data not reported.

**SLO: Communication skills**
Students pursuing the Equine Science Certificate will display satisfactory competency in written and oral communication skills.

• **Measure: Communication**
  Equine Science Certificate students will demonstrate sufficient oral and written communication skills to adequately convey Equine Science knowledge and/or expertise.
  Source of Evidence: Presentation, either individual or group

• **Target:** 80% of Equine Science Certificate students will achieve a score of 75% or higher in oral and written communication skills as evidenced by performance during individual and/or team projects/presentations.

• **Findings (2016-2017) - Target: Not Met**
  First time for this program to be assessed – data not reported.

**Details of Action Plans for This Cycle**

**Student expertise and employment**
Equine Science Certificate students will be exposed to internship opportunities through undergraduate advising and internship coordinators. Communication of internship requirements will be disseminated to all students at the beginning of their Equine Science Certificate program. Students will be tracked via course completion through undergraduate advising and internship coordinators. The current undergraduate survey assessment tool will include survey questions pertinent to Equine Science Certificate students.

**Established in Cycle:** 2016-2017

**Implementation Status:** Planned

**Priority:** High

**Analysis**
First time for this certificate program to be assessed – data not reported. No analysis
**Mission / Purpose**
The Undergraduate Certificate in Meat Science is designed to provide specialized instruction and training in meat science. The certificate program is designed to prepare ANSC undergraduate students for a variety of careers in the meat or meat-related industry by providing students with a core set of essential skills, knowledge and competencies sought by the meat industry.

**Goals**

- **Development of Technical Expertise**
  Students participating in the Meat Science Certificate program will develop an expanded knowledge base, advanced skills and competencies in meat science chemistry, conversion of muscle to meat, fabrication, further processing, nutrition, safety and quality.

- **Student Employment Rate**
  Meat Science Certificate program students will be tracked to collect data (via established ANSC undergraduate student survey assessment) on employment in the meat industry.

**Student Learning Outcomes, Measures, Targets, Findings, and Action Plans**

**SLO: Develop Expertise**
Development of Meat Science Skills, Competencies and Expertise

- **Measure:** Develop Expertise
  Meat Science Certificate students will conduct an internship in the meats or meats-related industry. Source of Evidence: Field work, internship, or teaching evaluation

- **Target:** 50% of students pursuing the Meat Science Certificate will have an internship experience.

  - **Findings (2016-2017) - Target: Not Met**
    First time for this program to be assessed – data not reported.

**SLO: Employment Rate**
Employment rate of students completing the Meat Science Certificate program.

- **Measure:** Develop Expertise
  Meat Science Certificate students will conduct an internship in the meats or meats-related industry. Source of Evidence: Field work, internship, or teaching evaluation

- **Target:** 75% of students completing the Meat Science Certificate will be employed in the meats or meats-related industry.

  - **Findings (2016-2017) - Target: Not Met**
    First time for this program to be assessed – data not reported.

**SLO: Communication Skills**
Students pursuing the Meat Science Certificate will display satisfactory competency in written and oral communication skills.

- **Measure:** Communication
  Meat Science Certificate students will demonstrate sufficient written and oral communication skills to adequately convey meat science knowledge and/or expertise. Source of Evidence: Presentation, either individual or group
• **Target:** 80% of Meat Science Certificate students will achieve a score of 75% or higher in written and oral communication skills as evidenced by performance during individual and/or team projects/presentations.

• **Findings (2016-2017) - Target: Not Met**
  First time for this program to be assessed – data not reported.

**Details of Action Plans for This Cycle**

**Student Success**

Students pursuing the Meat Science Certificate will be tracked to determine if they had an internship experience. Certificate courses will be reviewed to determine if any need to added, deleted or modified to enhance student success. The employment rate of Certificate students will be tracked by adding specific questions related to this certificate to our undergraduate survey assessment tool.

**Established in Cycle:** 2016-2017  
**Implementation Status:** Planned  
**Priority:** High

**Analysis**

First time for this certificate program to be assessed – data not reported. No analysis.
Mission / Purpose
The Equine Industry Management (EQIM) program is designed to prepare graduates for a variety of careers in the equine industry and graduate future leaders of the equine industry by providing students with a core skillset considered to be vital in the equine industry, and then guiding them in customizing the supporting internships based on specific career path interests. The curriculum focuses on developing skillsets in equine science, marketing, management, public affairs, communication and leadership.

Goals

• Development of technical expertise
  EQIM students will participate in two professional internships during their degree and will also write a professional paper demonstrating their understanding of their selected area of equine expertise.

• Employment rate
  EQIM students will be tracked in order to collect data on their employment and progress in the equine industry. Goal is 100% employment in equine or equine related industries.

Student Learning Outcomes, Measures, Targets, Findings, and Action Plans

SLO: Leadership
Demonstrate leadership and team development

• Measure: Internships
  Students will complete two industry or professional internships.
  Source of Evidence: Field work, internship, or teaching evaluation

• Target: 100% of students will receive at least a satisfactory evaluation from their internship supervisor.

• Findings (2016-2017) - Target: Met
  All students (100%) received satisfactory or better evaluations from their internship supervisor.

SLO: Develop Expertise
Development of Specific Areas of Expertise

• Measure: Professional Paper
  Students will be evaluated during their capstone assignment using an established rubric, writing and presenting their professional paper/seminar, conducted as part of their internship experience or assigned project.
  Source of Evidence: Capstone course assignments measuring mastery

• Target: Students will display knowledge and technical expertise as evidenced by submitting a professional paper and presenting a professional seminar. Students will meet standards for content, professionalism and response to questions following an established rubric.

• Findings (2016-2017) - Target: Partially Met
  EQIM students presented professional papers and seminars as part of their degree requirements. It was observed that one student's paper and seminar did not follow the same guidelines as presented by the previous three. Standards were met, but it was noted that clear guidance and perhaps the addition of rubrics for professional papers and seminars should be provided by the chair to ensure standardization
of requirements for all cohorts. This program is new, and this is the first time it has been placed in the "assessment cycle" so there is no detailed data to report.

• **Measure: Internships**
  Students will complete two industry or professional internships. 
  Source of Evidence: Field work, internship, or teaching evaluation

• **Target:** 100% of students will meet or exceed expectations in demonstrating their mastery of expertise in equine industry management through the successful completion of their professional papers and seminars.

• **Findings (2016-2017) - Target: Not Met**
  First time for this program to be assessed – data not reported.

**SLO: Graduate Success**
Success of EQIM students in finding employment.

• **Measure: Internships**
  Students will complete two industry or professional internships. 
  Source of Evidence: Field work, internship, or teaching evaluation

• **Target:** 100% of students will successfully graduate from the EQIM program and gain employment in the equine industry.

• **Findings (2016-2017) - Target: Met**
  ALL EQIM students (four) successfully received their degrees (May 2017) and are employed and/or continuing professional education.

**Details of Action Plans for This Cycle**

**Student Success**
Since no detailed data to generate accurate findings were collected, efforts will be made to develop an assessment survey tool to be given to EQIM students after years 1 and 2 of the program to assess that the targets for developing expertise, graduate success and leadership are on track to being met (year 1) and are met (year 2).

**Established in Cycle:** 2016-2017
**Implementation Status:** Planned
**Priority:** High

**Analysis**
The EQIM is a new program graduating its first four cohorts in May 2017. During this time, it was observed that greater efforts need to be made in identifying internship opportunities early in the program. Additionally, standardizing what constitutes the basis for the professional paper/seminar (internship or project) must be clearly disseminated. Tracking student achievement in gaining employment must also be implemented as an indicator of program success. Adopting these adjustments and developing a survey assessment tool should improve future assessment results.

The Action Plan described will be implemented during the 2017-18 cycle. Obstacles to its implementation include identification of internship opportunities. Additionally, only two students are enrolled in the 2017-19 cohort so the sample size, or students served, is small. However, recommended changes should result in student performance and increased program recognition that should see an increased enrollment for the 2019-2021 cohort.
Mission / Purpose
The mission of the Department of Animal Science is to improve lives through discovery, integration, dissemination and application of science-based knowledge of animals and animal products. The department offers dynamic and challenging programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who contribute to the industry or continue further postgraduate education.

Goals
• **Knowledge base**
  Enhance foundational knowledge and skill competency.

• **Communication - Written and Oral**
  Students should exhibit proficiency in written and oral communication.

• **Complex Problem Solving**
  Students should exhibit proficiency in complex problem solving.

• **Understanding Research**
  Students should exhibit proficiency in understanding and conducting research.

Student Learning Outcomes, Measures, Targets, Findings, and Action Plans
SLO: Knowledge Base
Students will develop a foundational knowledge and skill competency.

• **Measure: Final Defense**
  Faculty will complete an evaluation at the student’s final defense using the College of Agriculture and Life Sciences graduate student evaluation form.
  Source of Evidence: Comprehensive/end-of-program subject matter exam

• **Target:** 90% of M.S. or M.Agr. students will demonstrate a mastery of discipline knowledge, as evidenced by meeting or exceeding expectations in item 1 of the faculty evaluation form.

• **Findings (2016-2017) - Target: Met**
  During the current cycle, findings indicated that 53% of M.S./M.Agr. students exceeded and 46% met the target of demonstrated mastery of discipline knowledge (Q1) on the faculty evaluation form. Out of 25 M.S. students, none were rated below expectations for this target.

• **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

• **Target:** 75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.

• **Findings (2016-2017) - Target: Met**
  100% of M.S. students presented at least one paper for their research data at a scientific meeting. However, it was noted that a better data collection system for this metric is needed.
**SLO: Communication - Written and Oral**
Students will exhibit proficiency in written and oral communication.

- **M 1: Final Defense**
  Faculty will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.
  Source of Evidence: Comprehensive/end-of-program subject matter exam

- **Target:** 90% of M.S. or M.Agr. students will demonstrate effective communication, as evidenced by meeting or exceeding expectations on item 4 of the faculty evaluation form.

- **Findings (2016-2017) - Target: Met**
  100% of M.S. or M.Agr. students met (58%) or exceeded (42%) standards to demonstrate effective communication, as evidenced by meeting or exceeding expectations on item 4 of the faculty evaluation form.

- **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: Performance in subsequent schooling feedback

- **Target:** 75% of M.S. students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.

- **Findings (2016-2017) - Target: Met**
  100% of M.S. students presented at least one paper for their research data at a scientific meeting. Additionally, 42% (above expectation) and 58% (meets expectation) of M.S. students were assessed for effective communication (N=26). 2.42 out of 3/0 rating scale.

**SLO: Complex Problem Solving**
Students will exhibit proficiency in complex problem solving.

- **Measure: Final Defense**
  Faculty committee members will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.
  Source of Evidence: Comprehensive/end-of-program subject matter exam

- **Target:** 90% of M.S. or M.Agr. students will demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item 3 of the faculty evaluation form

- **Findings (2016-2017) - Target: Met**
  100% of M.S. students met (28%) or were above (68%) standards to demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item 3 of the faculty evaluation form.

- **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

- **Target:** 85% of students will report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

- **Findings (2016-2017) - Target: Met**
  100% of M.S. students indicated they were acceptable or proficient in their ability to use information to analyze and integrate knowledge. However 4% (Chair/Co-Chair) and 2% (committee members) indicated that M.S. students were below expectations.
**SLO: Understanding Research**
Students will demonstrate proficiency in understanding research.

- **Measure: Final Defense**
  Faculty committee members will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.
  Source of Evidence: Comprehensive/end-of-program subject matter exam

- **Target:** 90% of M.S. students will demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item 9 of the faculty evaluation form.

- **Findings (2016-2017) - Target: Met**
  100% of M.S. students met (40%) or exceeded (60%) standards to demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item 9 of the faculty evaluation form.

- **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

- **Target:** 80% of M.S. students will report that they are either acceptable or proficient in their ability to conduct valid, supported research.

- **Findings (2016-2017) - Target: Met**
  100% of M.S. students will report that they are either acceptable or proficient in their ability to conduct valid, supported research. This was also supported by evaluations of this metric by the Chair/Co-Chair and committee member assessments.

**Details of Action Plans for This Cycle**

**Applied Discipline Knowledge**
The graduate curriculum review was completed during FY14. Departmental policies regarding core courses and the publicity for the final examination were updated. The Department identified the ability to apply discipline knowledge as an appropriate measure of complex problem solving. An instrument will be administered during the final defense to the student and their advisory committee to assess application and integration of discipline knowledge toward resolution of problem issues.

- **Established in Cycle:** 2013-2014
- **Implementation Status:** In-Progress
- **Priority:** High

**Conduct Valid Research**
In order to assess the ability of M.S. students to understand the importance of research, we will assess their ability to formulate testable hypotheses and conduct valid experimentation. This assessment will be conducted by an instrument administered during the final thesis defense for both the Advisory Committee and the student to complete. The assessment ratings will include categories for meeting expectations or falls above or below expectations.

- **Established in Cycle:** 2013-2014
- **Implementation Status:** Planned
- **Priority:** High

**Library Resource Training**
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource materials to enhance their research experience has stimulated our desire to increase usage of these sources of information. Therefore, we will hold informational and training sessions for our graduate students to increase their technical skills in effectively using library resources. Library faculty and staff will facilitate these training sessions.
**Established in Cycle:** 2014-2015  
**Implementation Status:** Planned  
**Priority:** High

**Complex Problem Solving**

For the past five years, the target to solve complex problems has been met. This current cycle, the percentage of students who demonstrated the ability to solve complex problems was 2% below the target. In order to improve our students' abilities, our faculty will place renewed emphasis on training students to resolve complex problems. Specifically, we will use time during faculty meetings to discuss this topic, and to allow faculty to share ideas about best practices in order utilize those in their classrooms.

**Established in Cycle:** 2015-2016  
**Implementation Status:** Planned  
**Priority:** High

**Graduate Curriculum Revision**

We met all of our targets for the 2016-17 assessment cycle, but our data findings and initial graduate curriculum review highlighted areas that indicated our student-learning outcomes are loosely mapped to our curriculum. Based on the most recent graduate curriculum review, initiative will be taken to begin the planning process for redesigning our graduate curriculum. Based on the experiences gained through our ongoing undergraduate curriculum redesign, it has been determined that the same process should be applied to our graduate curriculum. The recent graduate curriculum review and other metrics (i.e., Provost scorecard) indicated that there is room for improvement with time-to-degree targets. Reevaluating our current graduate curriculum to revise student learning outcomes and assess whether courses are adequately offered throughout the academic year is to not only improve our time to degree percentage, but also ensure that technical knowledge, basic and applied technical skills, critical thinking and complex problem solving and competency in the scientific method are maintained and hopefully enhanced. New guidelines generated as a result of this effort will be added to the Graduate Student Handbook.

**Established in Cycle:** 2016-2017  
**Implementation Status:** Planned  
**Priority:** High

**Analysis**

We met all of our targets for the 2016-17 assessment cycle, but our data findings and initial graduate curriculum review highlighted areas that indicated our student learning outcomes are loosely mapped to our curriculum. Therefore, we will begin to identify specific courses where we can revise or modify student learning outcomes and course content. These changes to our curriculum should result in solving our programmatic/Department goals such as time-to-degree, but more importantly, they will better prepare our graduate students to understand and apply discipline-based knowledge and develop essential critical thinking and problem-solving skills. It is evident from the findings that we need to refocus efforts to identify and collect key data to confirm that we have met our targets. The action plan will include steps to develop a graduate student assessment tool that will aid the Department in collecting up-to-date information on our M.S./M.Agr. students for all targets listed.

We met all of our targets for the 2016-17 assessment cycle, but our action plan did not adequately provide detailed or appropriate data findings to accurately assess the effectiveness of our graduate program in preparing our students to understand and apply discipline-based knowledge and develop essential critical thinking and problem-solving skills. The focus of the Animal Science Department for the past assessment cycle was on revising our undergraduate curriculum, so this major effort did detract from available Department resources (personnel, time) to address course content, research experiences and other learning activities that enable us to meet our discipline-based knowledge, critical thinking and problem-solving targets. It is evident from this assessment cycle that we need to refocus our efforts to identify and collect key data to confirm that we have met our targets in the previously-mentioned measures. The action plan will include the development a graduate student assessment tool that specifically addresses these targets and aids the Department in collecting information that accurately assesses our impact on student learning in the areas of discipline-based knowledge, critical thinking and problem solving.
Mission / Purpose
The mission of the Department of Animal Science is to improve lives through discovery, integration, dissemination and application of science-based knowledge of animals and animal products. The department offers dynamic and challenging programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who contribute to industry or academia.

Goals
- Knowledge base
  Enhance fundamental knowledge and skill competency.

- Communication - Written and Oral
  Improve proficiency in written and oral communication.

- Complex Problem Solving
  Improve proficiency in complex problem solving.

- Understanding Research
  Stimulate proficiency in understanding and conducting research.

Student Learning Outcomes Measures, Targets, Findings, and Action Plans
SLO: Knowledge Base
Students will develop a foundational knowledge and skill competency.

- Measure: Final Defense
  Faculty will complete an evaluation at the student's final defense.
  Source of Evidence: Senior thesis or culminating major project

- Target: 50% of Ph.D. students will be ranked as exceeding the expectations to apply expert knowledge (item 2) by faculty at the time of their dissertation defense.

- Findings (2016-2017) - Target: Met
  Greater than 50% of Ph.D. students were ranked as exceeding the expectations to apply expert knowledge (item #2) by faculty at the time of their dissertation defense. However, detailed findings indicated a wide disparity between Chair assessments versus student assessments (29 vs 100% - above expectations; 71 versus 0% - meets expectations). There is an opportunity to further explore this disparity between Chair (faculty) and doctoral student assessment in this metric.

- Measure: Student Productivity Survey
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

- Target: 75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

- Findings (2016-2017) - Target: Met
  75% of Ph.D. students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.
SLO: Communication - Written and Oral
Students will exhibit proficiency in written and oral communication.

• **Measure: Final Defense**
  Faculty will complete an evaluation at the student's final defense.
  Source of Evidence: Senior thesis or culminating major project, COALS Graduate Student Evaluation Form Student Version

• **Target:** 60% of Ph.D. students will effectively teach or explain concepts of their discipline (item 5) at the time of their dissertation defense.

• **Findings (2016-2017) - Target: Met**
  Greater than 60% of Ph.D. students effectively taught or explained concepts of their discipline (item 5) at the time of their dissertation defense. It is interesting to note that a greater percentage of Chairs (86%) than students (67%) assessed student ability to explain concepts as above expectations.

• **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

• **Target:** 75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

• **Findings (2016-2017) - Target: Met**
  75% of students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.

SLO: Complex Problem Solving
Students will exhibit proficiency in complex problem solving.

• **Measure: Final Defense**
  Faculty will complete an evaluation at the student's final defense.
  Source of Evidence: Senior thesis or culminating major project

• **Target:** 50% of Ph.D. students will exceed expectations for their ability to analyze and integrate information (item 3) by the faculty at the time of their dissertation defense.

• **Findings (2016-2017) - Target: Met**
  Greater than 50% of Ph.D. students exceeded expectations for their ability to analyze and integrate information (item 3) by the faculty at the time of their dissertation defense. Chairs assessed this metric at 57% - above expectations and 43% - meets expectations.

• **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

• **Target:** 85% of students will report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

• **Findings (2016-2017) - Target: Met**
  100% of students reported that they were above expectations or proficient in their ability to use information to analyze and integrate knowledge. However, Chair assessments were lower (57% - above expectations, 43% - met expectations).
**SLO: Understanding Research**
Students will demonstrate proficiency in understanding research.

- **Measure: Final Defense**
  Faculty will complete an evaluation at the student's final defense.
  Source of Evidence: Senior thesis or culminating major project

- **Target:** 50% of Ph.D. students will be assessed to exceed the requirements of conducting valid research (item 9) by the time of their dissertation defense.

- **Findings (2016-2017) - Target: Partially Met**
  Chairs (43%) and members (58%) assessed Ph.D. students (N=3) as exceeded the requirements of conducting valid research (item 9) by the time of their dissertation defense.

- **Measure: Student Productivity Survey**
  Students will complete a survey at the time of the final defense indicating their scholarly productivity.
  Source of Evidence: COALS Graduate Student Evaluation Form Student Version

- **Target:** 80% of students will report that they are either acceptable or proficient in their ability to conduct valid, data-supported research.

- **Findings (2016-2017) - Target: Met**
  100% of students reported they were above expectations or proficient in their ability to conduct valid, data-supported research. However, Chair assessments were lower (43%-above expectations, 57% met expectations).

**Details of Action Plans for This Cycle**

**Understand Discipline Knowledge**
Since our target of successful completion of preliminary exams has been consistently met, a plan to transition to the survey instrument to assess understanding of discipline knowledge at the dissertation defense will be implemented. Our target is for 100% of Ph.D. candidates to meet or exceed the expectations of understanding knowledge of their discipline.

- **Established in Cycle:** 2012-2013
- **Implementation Status:** Planned
- **Priority:** High

**Disseminate Research**
A Ph.D. student must be able to communicate knowledge and skills they have acquired to diverse audiences. We will assess the ability of Ph.D. students to disseminate research results during their dissertation defense. Students will complete a self-assessment along with an assessment by each member of their advisory committees. Ph.D. research proposals will be evaluated by the committee chair and members and the Associate Head for Academic Programs to ensure that students will be able to conduct valid research.

- **Established in Cycle:** 2013-2014
- **Implementation Status:** Planned
- **Priority:** High

**Library Resource Training**
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource materials to enhance the research experience has stimulated our desire to increase usage of these sources of information. Therefore, we will hold information and training sessions for our students. Library faculty and staff will facilitate these training sessions. We believe this will strengthen the research output of our students.

- **Established in Cycle:** 2014-2015
- **Implementation Status:** Planned
- **Priority:** High
Knowledge Base
For the objective for this cycle, we need to continue the establishment of a baseline for the presentation of scientific data. Departmental faculty will encourage Ph.D. students to demonstrate competency and knowledge by presenting a paper for publication or presenting research at scientific meetings, as we believe this activity demonstrates their discipline knowledge and their ability to communicate in a way that their manuscripts are accepted by their peers in the scientific community. Faculty will share this expectation with students and follow up on an annual basis to see if students have presented, and will support those efforts through feedback to students, editorial review, or other support that committee members often provide to students.

Established in Cycle: 2015-2016
Implementation Status: Planned
Priority: High

Graduate Curriculum Revision
We met all of our targets for the 2016-17 assessment cycle, but our data findings and initial graduate curriculum review highlighted areas that indicated our student learning outcomes are loosely mapped to our curriculum. Based on the most recent graduate curriculum review, initiative will be taken to begin the planning process for redesigning our graduate curriculum. Based on the experiences gained through our ongoing undergraduate curriculum redesign, it has been determined that the same process should be applied to our graduate curriculum. The recent graduate curriculum review and other metrics (i.e., Provost scorecard) indicated that there is room for improvement with time-to-degree targets. Reevaluating our current graduate curriculum to revise student learning outcomes and assess whether courses are adequately offered throughout the academic year is to not only improve our time-to-degree percentage, but also ensure that technical knowledge, basic and applied technical skills, critical thinking and complex problem solving and competency in the scientific method are maintained and hopefully enhanced. New guidelines generated as a result of this effort will be added to the Graduate Student Handbook.

Established in Cycle: 2016-2017
Implementation Status: Planned
Priority: High

Analysis
It is evident from the findings that we need to refocus efforts to identify and collect key data to confirm that we have met our targets beyond the COALS Final Defense Evaluation Form. The action plan will include steps to develop a graduate student assessment tool (currently nonexistent) that will aid the Department in collecting up-to-date information on our Ph.D. students for all targets listed. This will hopefully provide more accuracy in assessing our progress in understanding discipline-specific knowledge, conducting valid research, disseminating research results and student employment success post-graduation.

We continue to excel in training Ph.D. students for employment in industry or academia. Key challenges are collection, analysis and dissemination of key findings to develop a more robust action plan. A graduate student assessment tool must be developed in order to improve our current assessment process for our Ph.D. students. A previous action plan (2011-2012) focused on improving progress in submission of the degree plan. Through an increased emphasis of degree plan requirements and deadlines during graduate student orientation, we have reduced the number of registration “holds” placed on our Ph.D. students due to lack of a degree plan on file. Ph.D. students and Chairs of their advisory committees are reminded during the second semester of their program that they have only one additional semester remaining to submit the degree plan. At-risk students will be individually contacted to determine the source of any obstacles to submission.
IMPROVEMENTS MADE AS A RESULT OF THE DEPARTMENT/PROGRAM’S ASSESSMENT OF STUDENT LEARNING OUTCOMES (ALL DEGREE LEVELS)

WEAKNESSES

• Data Collection and Assessment Processes: Data collection processes and assessment of academic programs can be improved to determine if student learning outcomes are being met as well as other key student profile data in order to gauge the success of the Department’s academic programs.
• Undergraduate and Graduate Curriculum: Existing undergraduate and graduate curricula require revision to develop standardized student learning outcomes, and a more structured assessment plan should provide the Department with the necessary tools to collect data, assess student progress and take action to correct deficiencies in order to improve the quality of our students’ educational experience.
• Certificate Programs: Assessment of Certificate programs student learning outcomes should be refocused on enhancing knowledge and skills rather than processes that support learning. Department tracking of Certificate program students and collecting assessment data need improvement.
• Graduate Student Assessment: Chair and committee member assessments of graduate students’ abilities to conduct research, analyze and integrate information and apply expert knowledge were rated lower than the students’ self-assessments.

STRENGTHS

• Undergraduate Research: Approximately 55% of our undergraduate students in 2016-2017 acquired research experience through enrollment in ANSC 291, 485 and/or 491.
• Undergraduate and Graduate Curriculum: The existing undergraduate curriculum was revised by our ANSC Undergraduate Curriculum Committee to provide standardized student learning outcomes for implementation in Fall 2018. These student learning outcomes, coupled with a new program assessment plan should provide the Department with the necessary tools to collect data, assess student progress, identify bottlenecks and correct deficiencies in order to improve the quality of our students’ educational experience. Our ANSC Graduate Program Committee is currently undergoing a review and future revision to our graduate program curricula.
• Development of New Courses: In response to recommendations from our Undergraduate Curriculum Committee, new courses have been developed to enhance the program curricula to provide meaningful learning for our students. ANSC 399 - Animal Science Experience and ANSC 498 - Animal Science Capstone are key courses to enhance students’ skills and competencies, including problem solving and critical thinking, which will develop graduates who are highly sought for industry positions or postgraduate professional studies.
• Study Abroad: The two study abroad programs to date have been successful with consistent enrollment of approximately 25-30 students per offering. We are currently considering the development of a third study abroad program to Mexico.
• Internships: Formal internship experiences have been a fundamental component of our undergraduate degree program for decades. These experiences continue to be tremendously influential for our students as they attempt to discern career paths and direction for postgraduate opportunities.
• Graduate Student Assessment: Assessments by graduate students of their abilities to conduct research, analyze and integrate information and apply expert knowledge were above 80%.

IMPROVEMENTS

• Development of a newly-revised undergraduate curriculum with student learning outcomes mapped to our curriculum, development of new courses and development of an aligned assessment plan.
• Revision of Graduate Student Handbook.
• Beta test of the graduate performance review process to track student performance on an annual basis throughout the degree program to identify student/faculty concerns toward timely degree completion.
• Current efforts of the ANSC Graduate Program Committee to begin reviewing and revising graduate degree program requirements and curricula to develop student learning outcomes mapped across the curricula with accompanying assessment plan.
Core Faculty (Defined as Full-Time, Tenured and Tenure-Track)

Number of Core Faculty
A list of current faculty members by rank is detailed below; faculty biographies may be found on pages 90-110 and CVs in the Appendix on pages 131-344.

There are 36 core faculty members in the department. There are a total of 60 Department of Animal Science faculty. A total of 47 Department of Animal Science faculty (36 core; 11 non-core) contribute to undergraduate/graduate teaching.

Table 5.1  Core Faculty.

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Years as TAMU Animal Science Faculty Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bazer, Fuller</td>
<td>University Distinguished Professor</td>
<td>26</td>
</tr>
<tr>
<td>Savell, Jeff</td>
<td>University Distinguished Professor and E.M. “Manny” Rosenthal Chair</td>
<td>42</td>
</tr>
<tr>
<td>Wu, Guoyao</td>
<td>University Distinguished Professor</td>
<td>27</td>
</tr>
<tr>
<td>Heird, Jim</td>
<td>Executive Professor</td>
<td>9</td>
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<tr>
<td>Carstens, Gordon</td>
<td>Professor</td>
<td>30</td>
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<tr>
<td>Cross, Russell</td>
<td>Professor</td>
<td>35</td>
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<tr>
<td>Forrest, David</td>
<td>Professor</td>
<td>38</td>
</tr>
<tr>
<td>Gehring, Kerri</td>
<td>Professor</td>
<td>13</td>
</tr>
<tr>
<td>Gill, Clare</td>
<td>Professor and Interim Executive Associate Dean, College of Agriculture and Life Sciences</td>
<td>17</td>
</tr>
<tr>
<td>Herring, Andy</td>
<td>Professor and Holder of John K. Riggs ’41 Beef Cattle Professorship</td>
<td>16</td>
</tr>
<tr>
<td>Ing, Nancy</td>
<td>Professor</td>
<td>26</td>
</tr>
<tr>
<td>Lamb, G. Cliff</td>
<td>Professor and Head</td>
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<tr>
<td>Miller, Rhonda</td>
<td>Professor and Texas A&amp;M AgriLife Research Faculty Fellow</td>
<td>30</td>
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<tr>
<td>Ramsey, Shawn</td>
<td>Professor and Assistant Department Head</td>
<td>23</td>
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<tr>
<td>Riley, David</td>
<td>Professor</td>
<td>9</td>
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<tr>
<td>Sanders, Jim</td>
<td>Professor</td>
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<tr>
<td>Skaggs, Chris</td>
<td>Professor and Associate Dean for Undergraduate Development, College of Agriculture and Life Sciences</td>
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<td>Smith, Steve</td>
<td>Regents Professor and Texas A&amp;M AgriLife Research Faculty Fellow</td>
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<tr>
<td>Tedeschi, Luis</td>
<td>Professor and Texas A&amp;M AgriLife Research Faculty Fellow</td>
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<td>Welsh, Tom</td>
<td>Professor and Texas A&amp;M AgriLife Research Faculty Fellow</td>
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<td>Castillo, Alejandro</td>
<td>Associate Professor</td>
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<td>Cooke, Reinaldo</td>
<td>Associate Professor</td>
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<td>Kerth, Chris</td>
<td>Associate Professor</td>
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<td>Osburn, Wes</td>
<td>Associate Professor and Associate Department Head</td>
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<td>Riggs, Penny</td>
<td>Associate Professor</td>
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<td>Satterfield, M. Carey</td>
<td>Associate Professor</td>
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<tr>
<td>Sawyer, Jason</td>
<td>Associate Professor and Associate Department Head</td>
<td>15</td>
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<tr>
<td>Taylor, T. Matthew</td>
<td>Associate Professor</td>
<td>11</td>
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</tbody>
</table>
Table 5.2  Faculty other than core.

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Years as TAMU Animal Science Faculty Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arnold, Ashley</td>
<td>Research Assistant Professor</td>
<td>5</td>
</tr>
<tr>
<td>Collins, Haley</td>
<td>Lecturer</td>
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</tr>
<tr>
<td>Frenzel, Leslie</td>
<td>Instructional Assistant Professor</td>
<td>3</td>
</tr>
<tr>
<td>Linne, Paige</td>
<td>Lecturer</td>
<td>.5</td>
</tr>
<tr>
<td>Paudyal, Sushil</td>
<td>Instructional Assistant Professor</td>
<td>.2</td>
</tr>
<tr>
<td>Weigert, Jeff</td>
<td>Instructional Assistant Professor and Extension Swine Specialist</td>
<td>.2</td>
</tr>
<tr>
<td>Gill, Ron</td>
<td>Professor, Extension Specialist and Associate Head</td>
<td>37</td>
</tr>
<tr>
<td>Carpenter, Bruce</td>
<td>Professor and Extension Specialist</td>
<td>33</td>
</tr>
<tr>
<td>Griffin, Davey</td>
<td>Professor and Extension Specialist</td>
<td>27</td>
</tr>
<tr>
<td>Hale, Dan</td>
<td>Professor and Extension Specialist</td>
<td>33</td>
</tr>
<tr>
<td>Paschal, Joe</td>
<td>Professor and Extension Specialist</td>
<td>32</td>
</tr>
<tr>
<td>Banta, Jason</td>
<td>Associate Professor and Extension Specialist</td>
<td>13</td>
</tr>
<tr>
<td>Cleere, Jason</td>
<td>Associate Professor and Extension Specialist</td>
<td>16</td>
</tr>
<tr>
<td>Hairgrove, Thomas</td>
<td>Associate Professor and Extension Specialist</td>
<td>2</td>
</tr>
<tr>
<td>Redden, R. Reid</td>
<td>Associate Professor and Extension Specialist</td>
<td>3</td>
</tr>
<tr>
<td>Pineiro, Juan</td>
<td>Assistant Professor and Extension Specialist</td>
<td>.5</td>
</tr>
<tr>
<td>Spencer, Jennifer</td>
<td>Assistant Professor and Extension Specialist</td>
<td>.5</td>
</tr>
<tr>
<td>Zoller, Jennifer</td>
<td>Assistant Professor and Extension Specialist</td>
<td>1</td>
</tr>
<tr>
<td>Huseman, Chelsie</td>
<td>Extension Program Specialist I</td>
<td>2</td>
</tr>
<tr>
<td>Jennings, Jenny</td>
<td>Assistant Professor – Amarillo</td>
<td>5</td>
</tr>
<tr>
<td>Long, Charles</td>
<td>Professor and Resident Director – Overton</td>
<td>36</td>
</tr>
<tr>
<td>Randel, Ron</td>
<td>Professor – Overton</td>
<td>40</td>
</tr>
<tr>
<td>Whitney, Travis</td>
<td>Associate Professor – San Angelo</td>
<td>13</td>
</tr>
<tr>
<td>Williams, Gary</td>
<td>Professor – Beeville</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Off-Campus Faculty with ANSC as Academic Home</td>
<td></td>
</tr>
<tr>
<td>Mies, William</td>
<td>Visiting Professor and Professor Emeritus</td>
<td></td>
</tr>
<tr>
<td>Smith, Gary</td>
<td>Visiting Professor</td>
<td></td>
</tr>
<tr>
<td>Tomaszewski, Michael</td>
<td>Visiting Professor and Professor &amp; Extension Specialist Emeritus</td>
<td></td>
</tr>
</tbody>
</table>

Extension Unit

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wickersham, Tryon</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Daigle, Courtney</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>De Carvalho Cardoso, Rodolfo</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Dunlap, Kathryn</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Gill, Jason</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Leatherwood, Jessica</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Pohler, Ky</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>White, Sarah</td>
<td>Assistant Professor</td>
</tr>
</tbody>
</table>

Visiting Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mies, William</td>
<td>Visiting Professor and Professor Emeritus</td>
</tr>
<tr>
<td>Smith, Gary</td>
<td>Visiting Professor</td>
</tr>
<tr>
<td>Tomaszewski, Michael</td>
<td>Visiting Professor and Professor &amp; Extension Specialist Emeritus</td>
</tr>
</tbody>
</table>
A total of 36 of the 60 faculty affiliated with the Department are tenured or tenure-track. Fifty faculty members are located on campus, with the balance located at Research and Extension Centers across the state.

Nineteen faculty have undergone successful review for promotion or promotion with tenure during the past five years. This success rate can be attributed to recruitment of new faculty who will be regarded as national and international experts in their fields. New faculty are mentored by committees comprised of three experienced faculty to assist with providing feedback and suggestions for improvement. A formal midterm review is required by the University after the third year of appointment. Midterm review provides an opportunity for the faculty member to receive valuable feedback regarding their progress toward promotion and/or tenure.

Table 5.3 Faculty by tenure, location and majority appointment category.

<table>
<thead>
<tr>
<th>Category</th>
<th>Tenured</th>
<th>Tenure-track</th>
<th>Non-tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>On Campus</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Off Campus</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Appointment</td>
<td>Teaching</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.4 Number reviewed for promotion, promotion and tenure or promotion of tenured faculty (FY 12-17).

<table>
<thead>
<tr>
<th>College</th>
<th>Promotion (non-tenure track)</th>
<th>Promotion and Tenure</th>
<th>Promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Reviewed</td>
<td>Number Successful</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2016</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>
Department of Animal Science Faculty Publications

Table 5.6  Faculty publications 2012-2017.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Refereed Technical Publications</td>
<td>154</td>
<td>160</td>
<td>206</td>
<td>182</td>
<td>136</td>
<td>153</td>
</tr>
<tr>
<td>Book Chapters</td>
<td>14</td>
<td>25</td>
<td>15</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Books Edited or Written</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Published Abstracts</td>
<td>175</td>
<td>149</td>
<td>66</td>
<td>95</td>
<td>145</td>
<td>149</td>
</tr>
<tr>
<td>Published Conference Proceedings</td>
<td>33</td>
<td>39</td>
<td>11</td>
<td>26</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>Published Technical Reports</td>
<td>5</td>
<td>38</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Grant and Contract Reports</td>
<td>27</td>
<td>31</td>
<td>36</td>
<td>36</td>
<td>30</td>
<td>43</td>
</tr>
<tr>
<td>Non-Refereed Technical Publications</td>
<td>24</td>
<td>24</td>
<td>36</td>
<td>40</td>
<td>19</td>
<td>6</td>
</tr>
</tbody>
</table>

Department of Animal Science Faculty External Grants

Table 5.7  Faculty external grants 2012-2017.

<table>
<thead>
<tr>
<th>No. Grant and Contract Proposals Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>132</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. Grants and Contracts Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>43</td>
</tr>
</tbody>
</table>

TOTAL GRANT AND CONTRACT DOLLARS AWARDED

- 2012 - $2,043,845
- 2013 - $1,845,310
- 2014 - $5,393,466
- 2015 - $2,448,525
- 2016 - $6,584,294
- 2017 - $2,926,761
Faculty Diversity

Females comprise 28.33% of the current faculty. Underrepresented minorities are 3.3% of the faculty, and 10% of the total faculty are international.

Table 5.8 Ethnicity and gender of Animal Science faculty.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black/ Hispanic</th>
<th>Other</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>16</td>
<td>52</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5.9 Animal Science faculty salary by rank (based on 10-month appointment).

<table>
<thead>
<tr>
<th>Rank</th>
<th>FY 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured Professor</td>
<td>$74,888 - $263,118</td>
</tr>
<tr>
<td>Tenured Associate Professor</td>
<td>$81,330 - $130,000</td>
</tr>
<tr>
<td>Tenure-Track Assistant Professor</td>
<td>$77,400 - $100,000</td>
</tr>
<tr>
<td>Academic Professional Track</td>
<td>$50,441 - $73,417</td>
</tr>
</tbody>
</table>

Table 5.10 Budgeted FTE by funding source.

<table>
<thead>
<tr>
<th>Item</th>
<th>Teaching</th>
<th>Research</th>
<th>Extension</th>
<th>Other</th>
<th>Totals</th>
<th>Head count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty FTE</td>
<td>23.56</td>
<td>8.41</td>
<td>11.36</td>
<td>3.69</td>
<td>47.027</td>
<td>56</td>
</tr>
<tr>
<td>Staff FTE</td>
<td>8.40</td>
<td>13.12</td>
<td>5.18</td>
<td>17.91</td>
<td>44.6082</td>
<td>47</td>
</tr>
</tbody>
</table>

Table 5.11 Profile of personnel expenditures by funding source.

<table>
<thead>
<tr>
<th>Item</th>
<th>Teaching</th>
<th>Research</th>
<th>Extension</th>
<th>Other</th>
<th>Totals</th>
<th>Budgeted FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>$3,150,378</td>
<td>$868,668</td>
<td>$1,059,940</td>
<td>$716,487</td>
<td>$5,795,473</td>
<td>47.0</td>
</tr>
<tr>
<td>Staff - budgeted</td>
<td>$472,929</td>
<td>$549,900</td>
<td>$139,244</td>
<td>$472,365</td>
<td>$1,634,438</td>
<td>44.6</td>
</tr>
<tr>
<td>Staff - wages</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$31,624</td>
<td>$31,624</td>
<td>0.0</td>
</tr>
<tr>
<td>Graduate</td>
<td>$445,623</td>
<td>$83,975</td>
<td>-</td>
<td>$624,173</td>
<td>$1,153,771</td>
<td>0.0</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>$3,509</td>
<td>$8,457</td>
<td>$7,060</td>
<td>$578,950</td>
<td>$597,976</td>
<td>0.0</td>
</tr>
<tr>
<td>Total Funds</td>
<td>$4,072,439</td>
<td>$1,511,000</td>
<td>$1,206,244</td>
<td>$2,423,599</td>
<td>$9,213,582</td>
<td>91.8</td>
</tr>
</tbody>
</table>

Faculty Teaching Load Student Credit Hours (SCH) & Net Weighted Student Credit Hours (Net WSCH)

The five year average (Fall semester data 2013-17) for student credit hours was 11,761 while net weighted student credit hours for the same time period was 35,229. The student credit hours ranged from 10,401 (Fall 2013) to 11,796 (Fall 2016) while weighted student credit hours ranged from 31,145 (Fall 2013) to 38,842 (Fall 2015). These values correspond to an increase in undergraduate student enrollment from 2013-2015. The individual faculty teaching load from Fall 2013 to Fall 2017 is located in the Electronic Appendix.
Ashley Arnold  
Research Assistant Professor  
Meat Science  
Animal Science Department Safety Officer  
Appointed 2013  
a.arnold@tamu.edu

B.S., M.S., Ph.D. [Animal Science] – Texas A&M University

Dr. Arnold contributes to multiple research projects investigating the quality, nutritive value, and safety of meat products. Her research areas include the pre-harvest surveillance of Salmonella in fed-cattle operations, post-harvest evaluation of Salmonella in the lymph nodes of cattle, alternative lethality and stabilization methods for processed meat products, and the validation of various post-harvest intervention practices. Dr. Arnold also serves as the primary instructor for multi-week and multi-specie harvest and processing training courses for inspection personnel and as an assistant instructor for other food safety courses for industry members. Additionally, Dr. Arnold serves as Safety Officer for the Department of Animal Science. In this important capacity, she is a liaison with the Office of Environmental Health and Safety, coordinates chemical inventory, manages hazardous material reporting, facilitates required laboratory and other inspections, and serves as a resource for faculty and staff.

Jason Banta  
Associate Professor and Extension Beef Cattle Specialist  
Animal Nutrition  
Texas A&M AgriLife Research and Extension Center – Overton  
Appointed 2005  
jpbantha@ag.tamu.edu

B.S. [Animal Science] – Texas A&M University  
M.S. [Animal Science] – West Texas A&M University  
Ph.D. [Animal Nutrition] – Oklahoma State University

As an Extension beef cattle specialist, Dr. Banta works with county Extension agents and allied industry personal to develop educational programming for cow-calf and stocker producers in East and Northeast Texas. He also works with other AgriLife and A&M faculty to conduct beef cattle research in the areas of ruminant nutrition, cow-calf and stocker management, and animal health. Additionally, he co-coordinates and teaches a Special Topics in Applied Beef Cattle Nutrition course in the College of Veterinary Medicine and Biomedical Sciences.

Fuller Bazer  
Regents Fellow, University Distinguished Professor, Presidential Impact Fellow and O.D. Butler Chair  
Physiology of Reproduction  
Appointed 1992  
fbazer@cvm.tamu.edu

B.S. [Biology] – Centenary College of Louisiana  
M.S. [Animal Science] – Louisiana State University  
Ph.D. [Animal Science] – North Carolina State University

Dr. Bazer joined the faculty at Texas A&M University in 1992 as Professor and O.D. Butler Chair and Director of the Center for Animal Biotechnology and Genomics. Between 1994 and 2001, Dr. Bazer was Director of the Institute of Biosciences and Technology, a member of the organizing committee (1995-1998) and Vice President for Research and Interim Dean, Graduate School of Biomedical Sciences of the A&M University System Health Science Center (1999-2000). He also served as Associate Vice Chancellor for Agriculture and Life Sciences, Executive Associate Dean of the College of Agriculture and Life Sciences, Associate Director of the Texas Agricultural Experiment Station (2001-
Dr. Bazer’s research in reproductive biology focuses on uterine biology and pregnancy, particularly pregnancy recognition signaling from the conceptus to the maternal uterus by interferon tau and estrogen from ruminant and pig conceptuses, respectively. The roles of uterine secretions as transport proteins, regulatory molecules, growth factors and enzymes and endocrine regulation of their secretion is another major research interest.

Rodolfo Cardoso  
Assistant Professor  
Physiology of Reproduction  
Appointed 2016  
r.cardoso@tamu.edu

Dr. Cardoso is the Vice-Chair of the Texas A&M Interdisciplinary Faculty of Reproductive Biology and an active member of the Texas A&M Institute for Neuroscience. Upon completion of his DVM, Dr. Cardoso completed a residency program in Veterinary Theriogenology in 2007 at São Paulo State University (Brazil). He completed a postdoctoral fellowship in Reproductive Endocrinology in 2016 at the University of Michigan. Dr. Cardoso’s research interests focus on understanding the impact of the prenatal and early postnatal environments on reproductive neuroendocrine function in females using cattle and sheep as animal models to benefit both the livestock industry as well as human reproductive health. The Cardoso Lab integrates whole animal physiology with cellular and molecular biology to elucidate the mechanisms by which environment factors, such as nutrition and stress, can modulate several reproductive processes in the offspring. Dr. Cardoso’s teaching interests range from practical reproductive management of livestock to advanced reproductive neuroendocrinology.

Bruce Carpenter  
Professor and Extension Livestock Specialist  
District VI Texas A&M AgriLife Extension – Fort Stockton  
Appointed 2002  
bb-carpenter@tamu.edu

Dr. Carpenter is headquartered at the District VI Texas A&M AgriLife Extension Center in Ft. Stockton. His Extension activities include responsibilities across several Extension Districts in West and Southwest Texas, as well as other Texas counties, where he interacts with County Extension Agents, livestock producers and allied industry to conduct educational programs and applied research targeting range livestock (cattle, sheep, goats) horses, and ranch and natural resource management and planning. At the regional and state levels, he is active in Integrated Toxic Plant Management, the Southwest Beef Symposium, the Beef Cattle Short Course and cattle pregnancy determination and artificial insemination clinics.

Gordon Carstens  
Professor  
Animal Nutrition  
Appointed 1991  
g-carstens@tamu.edu

Dr. Carstens’ teaching program includes the undergraduate course ANSC 318—Animal Feeds and Feeding, which is a required course for the Animal Science degree program. Graduate teaching responsibilities include ANSC 602—
Bioenergetics of Metabolism and Growth and ANSC 623—Precision Diet Formulation (team-taught). His research program is basic and translational in nature, and has recently focused on the discovery of biological mechanisms associated with efficient utilization of feed resources in beef cattle. Moreover, Dr. Carstens’ program is focused on translational research to develop innovative strategies to facilitate industry adoption of technologies to improve feed efficiency in beef cattle. Long-term goals of the research program are to develop technologies that will improve the global competitive position of the U.S. beef cattle industry in an environmentally sustainable manner.

Alejandro “Alex” Castillo
Associate Professor
Meat Science
Appointed 2002
a-castillo@tamu.edu

B.S. [Biology and Pharmacy], M.S. [Food Microbiology and Hygiene] – University of Guadalajara
Ph.D. [Food Science and Technology] – Texas A&M University

Dr. Castillo’s research interests include the safety of fresh and fresh-cut fruits and vegetables as well as beef and pork products. For these commodities, specific areas of research include the ecology of bacterial pathogens in growing and processing environments, the development of preventive controls to prevent or reduce bacterial pathogens, the optimization of antimicrobial sprays to reduce bacterial pathogens, and the use of electron beam irradiation for food safety purposes. Dr. Castillo teaches a graduate course in Microbiology of Foods, is a member of the team of instructors in the Hazard Analysis and Critical Control Point System stacked course, and guest lecturer for the undergraduate courses, Religious and Ethnic Foods and Food Bacteriology.

Jason Cleere
Associate Professor and Extension Beef Cattle Specialist
Appointed 2002
jjcleere@tamu.edu

B.S. [Agricultural Science], M.S. [Animal Science] – Texas A&M University
Ph.D. [Animal Science] – Texas Tech University

Dr. Cleere develops and implements Extension educational programs to increase production efficiency and profitability of Texas beef cattle producers. He also serves as Coordinator of the Texas A&M Beef Cattle Short Course, which attracts more than 1,800 participants to campus each August. He also teaches ANSC 302, Beef Cattle Production, and conducts applied beef cattle research.

Haley Collins
Lecturer and Horse Judging Team Coordinator
Equine Science
Appointed 2015
haley.collins10@tamu.edu

B.S. [Animal Science] – Oklahoma State University
M.S. [Agriculture] – Sam Houston State University

Ms. Collins teaches several undergraduate equine courses, as well as coaches and coordinates the Texas A&M University Horse Judging Team. During her time as an undergraduate and graduate student, Haley has been involved in numerous research efforts focused on equine physiology and performance. She is currently pursuing her Ph.D. in Animal Science with a focus on Genetics and Breeding.
Reinaldo Cooke  
Associate Professor  
Beef Cattle Production  
Appointed 2017  
reinaldocooke@tamu.edu  
B.S. [Animal Science] – São Paulo State University  
M.S., Ph.D. [Animal Science] – University of Florida  
Prior to his appointment at Texas A&M University, Dr. Cooke served Oregon State University as Assistant and Associate Professor – Beef Cattle Specialist from 2009 – 2017. Dr. Cooke's academic program is geared toward addressing the needs of the Texas, US and worldwide beef industries. His research efforts focus on management strategies to improve productive efficiency in beef cattle operations, including nutrition, health, growth and reproductive responses in Bos indicus and B. taurus cattle. To date, Dr. Cooke has authored/co-authored >400 publications, including 100 journal articles and two book chapters, delivered >150 Extension presentations in local, national and international events, and secured >$4 million in extramural research funding. Dr. Cooke has mentored six Ph.D. and nine M.S. students, 35 research interns and one postdoctoral fellow. He serves on the American Society of Animal Science Western Section Executive Committee, as Section Editor for the Journal of Animal Science and received the ASAS Early Career Achievement Award in 2018, ASAS Western Section Extension Award in 2017 and the ASAS Western Section Young Scientist Award in 2016.

Russell Cross  
Professor  
Meat Science  
Appointed 1983  
hrcross@tamu.edu  
B.S., M.S. [Animal Science] – University of Florida  
Ph.D. [Animal Science] – Texas A&M University  
Dr. Cross has over 40 years of management experience, holding numerous positions in government, academia, and the private sector. He most recently served as Professor and Head of the Department of Animal Science prior to returning to the faculty full time in 2017. Previously, he served as Executive Vice President for Operations and Chief of Staff to Texas A&M University President Elsa Murano, which was preceded by service as Deputy Vice Chancellor and Associate Dean for Agriculture and Life Sciences at Texas A&M University. Additionally, Dr. Cross was the founding director of Texas A&M's Institute of Food Science and Engineering. His service in government includes the role of Administrator of the USDA's Food Safety and Inspection Service under Presidents Bush (41) and Clinton. At the US Meat Animal Research Center, Dr. Cross served as the USDA's Research Leader within the Meat Research Group. He also pioneered the International HACCP Alliance that currently represents 24 food associations, 40 universities and the governments of 13 countries. Dr. Cross also was Director of Food Safety Net Services for IDEXX Laboratory, Vice President of Food Safety Solutions, DuPont, and Executive Vice President of National Beef Company.

Courtney Daigle  
Assistant Professor  
Animal Welfare  
Appointed 2016  
cdaigle@tamu.edu  
B.S. [Zoology] – Oklahoma State University  
M.S. [Zoo & Aquarium Management], Ph.D. [Animal Science] – Michigan State University  
Dr. Daigle specializes in developing and quantifying the impact of management practices designed to optimize animal health, productivity and welfare. The Daigle Lab empirically evaluates the relationship between cattle behavior, health and productivity and is developing innovative strategies that will enhance our approach to disease detection and temperament evaluation. Research efforts include quantifying the impact of environmental enrichment, social mixing and the human-
animal interaction on feedlot cattle productivity and behavior as well as identifying the relationship between cattle behavior and rumen health. The Daigle Lab also specializes in evaluating the human-animal interaction as it relates to animal productivity, personnel management and audit outcomes. Dr. Daigle teaches the undergraduate course, Behavior and Management of Domestic Species, a graduate course on animal welfare, and coordinates a dog socialization course. She is a faculty advisor for the Texas A&M Animal Welfare Judging Team and the Texas Aggie Cattlewomen.

Kathrin “Katie” Dunlap  
Assistant Professor  
Physiology of Reproduction  
Appointed 2011  
kdunlap@tamu.edu

B.S., M.S. [Animal Science] – Oregon State University  
Ph.D. [Physiology of Reproduction] – Texas A&M University

Dr. Dunlap's recent research interests focus on enhancing student learning opportunities through the study of principles and practices of education in animal science. Her program includes emphases on student engagement, instruction for nontraditional animal science students, curriculum development, and use of online delivery platforms. Additionally, she remains a member of the uterine biology and pregnancy laboratory where she investigates fundamental molecular mechanisms regulating the development and function of the placenta and the subsequent impact on fetal growth, viability and long-term health. Dr. Dunlap is an instructor for the honors and online sections of the General Animal Science course and is involved in the creation of new courses that are part of the updated departmental curriculum that launched in Fall 2018.

David Forrest  
Professor  
Physiology of Reproduction  
Appointed 1980  
d-forrest@tamu.edu

B.S. [Animal Science] – Abilene Christian College  
M.S. [Physiology of Reproduction] – Texas A&M University  
Ph.D. [Reproductive Physiology] – University of Wyoming

Dr. Forrest teaches a graduate course in reproductive physiology, a graduate seminar class and assists Dr. Frenzel with the undergraduate animal science career preparation class. He conducts research to determine the hormonal mechanisms that control gonadal function in beef cows through his appointment with Texas A&M AgriLife Research. He provides service to professional societies, the University, the College and the Department through his leadership as a Faculty Senator, service on committees and as an advisor to student organizations and competitive teams. Dr. Forrest maintains a joint appointment with the Department of Large Animal Medicine and Surgery.

Leslie Frenzel  
Instructional Assistant Professor and Undergraduate Academic Advisor  
Meat Judging Team Coordinator  
Appointed 2014  
lesliefrenzel@tamu.edu

B.S., M.S. [Animal Science] – Tarleton State University  
Ph.D. [Animal Science] – Texas A&M University

Dr. Frenzel teaches ANSC 107, 317 and 402 as well as academically advises undergraduate students. She is also the coordinator of the Texas A&M University Meat Judging Team. Dr. Frenzel has participated in several funded research projects in Meat Science and Food Safety. She is also an active participant in the many Animal Science programs that focus on meat science: Beef 101, Beef 706, Zoetis Beef University, Center of the Plate, Pork 101, Barbeque Summer
Camp, Camp Brisket, and more. As a graduate student, she received the Association of Former Students Distinguished Graduate Student Teaching Award, the Ronnie L. Edwards Outstanding Graduate Student Teaching Award and the Zerle L. Carpenter Outstanding Graduate Student Award in Meat Science.

Kerri Gehring
Professor
Meat Science
Appointed 2006
kbgehring@tamu.edu

B.S. [Food Science], M.S., Ph.D. [Nutrition] – Texas A&M University

Dr. Gehring has developed a high-impact, industry-oriented research program by combining her knowledge of the food industry and USDA and FDA regulatory requirements. She is widely recognized globally as a leader in the fields of meat quality, nutrition and food safety. Dr. Gehring team-teaches a HACCP course for graduate/undergraduate students, and two graduate-level food safety courses. She coordinates and teaches various HACCP and food safety industry training programs that attract national and international participants, and she conducts educational programs for the USDA's Food Safety and Inspection Service. She works closely with the food industry to provide valuable assistance in developing and implementing HACCP programs. Dr. Gehring has been actively involved in the HACCP Alliance since it was formed in March 1994, and as current President and CEO, she contributes to the growth and accomplishments of the Alliance.

Clare Gill
Professor, Animal Breeding and Genetics
Interim Executive Associate Dean, College of Agriculture and Life Sciences
Appointed 2001
clare-gill@tamu.edu

Bachelor’s – Honors (Class I) [Biotechnology] – Flinders University of South Australia
Ph.D. [Animal Molecular Genetics] – University of Adelaide

Dr. Gill teaches an undergraduate senior seminar course and a graduate course in applied animal genomics. Her primary research interest is in development and application of efficient molecular tools for comparative genomics. Dr. Gill is also the principal investigator of the McGregor Genomics Project, which is a collaborative effort to map genes for production efficiency in cattle. She is a member of the interdisciplinary programs in genetics and biotechnology.

Jason Gill
Assistant Professor
Bacteriophage Biology and Microbiology
Appointed 2013
jason.gill@tamu.edu

B.S. [Environmental Sciences], M.S. [Biology] – Brock University (Ontario, Canada)
Ph.D. [Microbiology] – University of Guelph

Dr. Jason Gill joined the faculty in 2013. After obtaining his doctorate, Dr. Gill pursued postdoctoral training at Texas A&M in the Department of Biochemistry and Biophysics and served as the inaugural Program Director of the TAMU Center for Phage Technology, an interdisciplinary research and teaching initiative. His major research focus is the biology and application of the viruses of bacteria, called bacteriophages or simply phages. The increasing prevalence of antibiotic resistance in pathogenic bacteria, and the desire to curtail use of antibiotics in animal agriculture, has sparked interest in the use of phages as antimicrobial. Research in Dr. Gill’s lab encompasses phage genomics, basic phage biology and the application of phages in real-world settings. He instructs ANSC 689 (Bacterial Genomics), which is also cross-listed to GENE, ANSC 681 (Graduate Seminar) and co-instructs BICH 464 (Bacteriophage Genomics).
Ron Gill
Professor and Extension Livestock Specialist
Associate Department Head for Extension
Appointed 1984
RGill@tamu.edu

B.S. [Animal Science], M.S. [Beef Cattle/Range Nutrition] – Angelo State University
Ph.D. [Nutrition] – Texas A&M University

In addition to his extensive administrative responsibilities within Animal Science, Dr. Gill continues to provide support to statewide programming efforts for the Texas Beef Quality Assurance Program. In addition, Dr. Gill is involved in educational programming related to integrated management of ranch resources focusing on forage and beef cattle production and management in both cow-calf and stocker operations. He is highly respected by state and national livestock associations for his industry knowledge and technical expertise. Additionally, Dr. Gill provides leadership in Extension programming related to animal wellbeing and low-stress livestock handling. Other interests include beef cattle and equine nutritional management and value added marketing.

Davey Griffin
Professor and Extension Meat Specialist
Appointed 1991
dgriff@tamu.edu

B.S., M.S., Ph.D. [Animal Science] – Texas A&M University

Dr. Griffin serves as a liaison between industry, commodity groups, medical and dietary professionals and Extension personnel to provide research information and technology. Dr. Griffin's key program and interest areas include cutability and composition of carcasses associated with value-based marketing, current consumer issues concerning meat and meat products, youth development and cooperative research projects. Some of the high-impact programs he coordinates include Beef 101, Pork 101 and the Center of the Plate Conference.

Jenny Jennings
Assistant Professor
Animal Nutrition
Appointed 2013
jenny.jennings@ag.tamu.edu

B.S. [Animal Science] – Missouri State University
M.S. [Animal Science] – University of Arkansas
Ph.D. [Animal Science] – South Dakota State University

Dr. Jenny Jennings is the Texas A&M AgriLife Research Project Leader for the Animal Nutrition Laboratory in Amarillo, Texas A&M AgriLife Research/USDA-ARS Research Feedlot and Metabolism Laboratory at Bushland, and livestock research at the Texas A&M AgriLife Research James Bush Research Farm north of Bushland. Her general research interests include nutritional management and sustainability within all sectors of the beef cattle industry. She is currently focused on: alternative confinement systems for grazing cows, improving the utilization of forage and byproduct feeds, genomic selection tools connected to rumen metabolism, body composition, and health, and environmental impacts of the beef industry.

Tom Hairgrove
Associate Professor and Extension Specialist
Appointed 2016
tbhairgrove@tamu.edu


After spending 30 years in private veterinary practice, Dr. Hairgrove pursued a shift in career...
direction by assisting Texas A&M AgriLife Extension in responding to an ever-growing demand from citizens for expertise in meeting their needs with herd health, management and quality assurance in livestock and food animal production systems. His talents and knowledge base have been at the forefront of several significant and noteworthy efforts. Dr. Hairgrove eagerly serves as a resource for practicing veterinarians and their clients, livestock owners, allied industry groups and intensified livestock operations on issues emphasizing beef, dairy, sheep/goats, swine and horses. He promotes positive and productive working relationships through ongoing interaction and support to organizations valued by the Animal Science Department and Texas A&M AgriLife Extension such as the Texas Animal Health Commission and the Texas Dairy Association. Additionally, he provides Beef Quality Assurance (BQA) training to students involved in agricultural-related studies at Texas A&M University and Prairie View A&M University. He works closely with the Texas A&M University College of Veterinary Medicine and Biomedical Sciences related to all aspects of herd health and collaborates with Prairie View A&M University Cooperative Extension on research grants and educational programming.

Dan Hale
Professor and Extension Meat Specialist
Appointed 1985
dhale@tamu.edu

B.S., M.S. [Animal Science] – Kansas State University
Ph.D. [Food, Nutrition and Institutional Sciences] – Oklahoma State University

Dr. Hale helps facilitate state, regional and county activities that work to give consumers a better grasp of the workings of the agricultural industry and the importance of agriculture and food to our health and to the Texas economy and society. Additionally, he works to help agriculturalists and food companies to better understand the stewardship role they play in producing food and other agricultural products. As a Professor and Extension Specialist, he interprets and extends information on diet/health, food safety, meat quality livestock growth and meat science to consumers, youth, health professionals, retailers, foodservice managers, packers, processors and livestock producers. He also performs industry-applied meat science research. Dr. Hale is a member of the research team for the National Beef Quality Audit and the National Market Cow and Bull Beef Quality Audit. Also, he has worked with the National Consumer Retail Beef Study, the National Market Basket Survey and the Beef Tenderness Survey, which examined supplies of beef offered at the retail meat case and determined what consumers want in meat products. He also directs the RanchTV.org online learning activities which includes over 1,200 YouTube videos and offers eight beef production programs. The flagship program of RanchTV is the online Beef Quality Assurance program, which is a statewide certification program in which over 8,000 people have enrolled. Finally, Dr. Hale is a Professional Animal Auditor Certification Organization certified auditor and a technical reviewer for the North American Meat Institute Foundation Animal Handling Guidelines. These guidelines underwent an extensive revision in 2016, and Dr. Hale was the lead external reviewer of this document. These guidelines are the foundation of every animal welfare audit that is conducted in the US and is published by the North American Meat Institute.

Steve Hammack
Professor and Extension Beef Cattle Specialist Emeritus
Texas A&M AgriLife Research and Extension Center – Stephenville
s-hammack@tamu.edu

B.S. [Animal Science] – Texas A&M University
M.S. [Animal Science] – University of Nevada
Ph.D. [Animal Science] – University of Tennessee

Prior to his retirement, Dr. Hammack worked primarily in cow-calf production, mostly in a 44-county area of Central and West Central Texas, containing about 1.25 million beef cows. Emphasis in his current part-time position is on genetic management and cow-calf production systems.
Jim Heird  
Glenn Blodgett Equine Chair  
Executive Professor and Coordinator, Texas A&M Equine Initiative  
jimheird@tamu.edu

B.S. [Animal Husbandry], M.S. [Animal Genetics] – University of Tennessee  
Ph.D. [Equine Behavior] – Texas Tech University  

Prior to joining Texas A&M University, Dr. Heird was Director of Teaching and Outreach for the Equine Sciences Program at Colorado State University. He also served as Director of the Colorado Agriculture and Rural Leadership program and as Chairman of the Management Committee of the Y Cross Ranch, a 50,000-acre ranch owned by Colorado State University and the University of Wyoming. Previously, he was a faculty member at Texas Tech University for 10 years preceding his 23-year career at Colorado State, where he served in several leadership positions including Associate Dean and Director of Academic Programs, Interim Dean of Business and as Interim Dean and Vice Provost for Agriculture and Outreach. Dr. Heird has an international reputation in the field of equine sciences. He has lectured on numerous topics both nationally and internationally. He has been a successful judging team coach, teacher, researcher, extension specialist and administrator. Dr. Heird’s research in the areas of equine conformation and equine behavior is recognized through the equine industry.

Andy Herring  
Professor & Holder of the John K. Riggs ’41 Beef Cattle Professorship  
Animal Breeding and Genetics  
andy.herring@tamu.edu

B.S. [Animal Science] – Tarleton State University  

Dr. Herring teaches undergraduate and graduate level classes in beef cattle production and management (ANSC 406 and 605). His research interests focus on areas to increase production efficiency for cow-calf producers and beef production systems through coordination of breeding strategies, environmental resources and marketing considerations. His research program has studied influences on milk production in beef cows, breed differences for feedlot and carcass characteristics, and genetic influences on beef cow productive longevity, cattle temperament and immune responses.

Chelsie Huseman  
Extension Program Specialist  
Equine Science  
Appointed 2017  
chelsiejo@tamu.edu

West Texas A&M University  
Ph.D. [Animal Science] – Texas A&M University  

Dr.. Huseman was appointed to her current position in 2017 after having served as a graduate assistant in Horse Extension under Dr. Dennis Sigler. She serves as the director of the Summer Horsemanship School Program and works in maintaining and developing other horse programs across Texas such as the State 4-H Horse Show and horse judging contests. Dr. Huseman’s dissertation focused on changes in bone density and composition in pigs and horses as a result of receiving whole body vibration therapy. Prior to coming to Texas A&M, Huseman was an equine instructor at Northeastern Oklahoma A&M College where she taught numerous courses in equine physiology, reproduction, nutrition and business. She also developed and coached NEO’s first IHSA equestrian team.
Nancy Ing  
Professor  
Physiology of Reproduction  
Appointed 1992  
ning@cvm.tamu.edu  


Dr. Ing's research interests focus on understanding how hormones regulate gene expression in large animal tissues. Current research projects investigate stress hormone effects on gene expression in the stallion testis and RNAs in spermatozoa from stallions and honeybees. Dr. Ing has a joint appointment with the Department of Veterinary Integrative Biosciences and is an active member of the Faculties of Genetics and Reproductive Biology. Dr. Ing teaches Companion Animal Science (ANSC 210), a course she created, every fall and spring semesters. With Dr. Daigle, she also teaches a new Dog Socialization class (ANSC 291/485) for research dogs that will be rehomed. In spring semesters, Dr. Ing teaches a senior-level Seminar class (ANSC 481).

Chris Kerth  
Associate Professor  
Meat Science  
Appointed 2010  
c-kerth@tamu.edu  

B.S. [Animal Science & Industry] - Kansas State University  
M.S., Ph.D. [Animal Science] – Texas Tech University  

Dr. Kerth teaches undergraduate and graduate level courses in the meats area including a course on statistical applied animal record keeping. His research interests focus primarily on flavor and aroma chemistry of food and beverages using. He has served as editor and author on two texts in the area of Meat Science with his expertise covering everything from consumer acceptability to color quality and oxidative stability to fatty acid composition of beef, pork, lamb and goat.

Cliff Lamb  
Professor and Department Head  
Appointed 2017  
gclamb@tamu.edu  

B.S. [Animal Science] – Middle Tennessee State University  
M.S., Ph.D. [Reproductive Physiology] – Kansas State University  

Dr. Lamb has served as Professor and Head of the Department of Animal Science since March 1, 2017. Previously, he served as Assistant Director and Professor at the University of Florida North Florida Research and Education Center in Marianna, FL. His primary scholarly efforts have focused on applied reproductive physiology in beef cattle with an emphasis on enhancing reproductive efficiency replacement heifers and postpartum cows. His programs have received more than $10 million in grant funds or gifts. Dr. Lamb has published 107 refereed journal articles, along with more than 521 extension and research reports.

Jessica Leatherwood  
Assistant Professor  
Equine Science  
Appointed 2016  
leatherwood@tamu.edu  

B.S, M.S., Ph.D. [Animal Science] – Texas A&M University  

Prior to her return to Texas A&M in 2016, Dr. Leatherwood served as the Equine Science Coordinator at Sam Houston State University. In addition to her teaching responsibilities, she focused on enriching undergraduate
students through the coordination of competitive teams such as the intercollegiate stock horse and horse judging teams. Here she began her appointment as the national advisor to the American Collegiate Horsemen's Association. She also worked alongside the America Quarter Horse Association to conduct international horsemanship programs throughout Europe, Australia, New Zealand, and China. In addition to student development, Dr. Leatherwood has advised multiple graduate students in the area of research in equine nutrition and physiology. Her research interests are primarily directed toward developing diets that may be effective in mitigating the over-stimulation of inflammatory processes within articulating joints of young performance horses, and continues to evaluate biomarkers that may be indicative of cartilage turnover, to be utilized in the early detection of equine orthopedic disease. Dr. Leatherwood's teaching responsibilities include ANSC 411 (Equine Nutrition and Health), ANSC 423/621 (Issues in the Equine Industry), and ANSC 611 (Equine Nutrition).

Paige Linne
Lecturer
Equine Science
Appointed 2018
plinne@tamu.edu

B.S. [Animal Science], Master's [Equine Industry Management] – Texas A&M University

Prior to her arrival at Texas A&M University, Ms. Linne was the Western Equestrian Coach and Course Instructor at the University of Alabama where she was integral in building a competitive western equestrian program. Paige strives to stay involved in the Quarter Horse industry, having served as a scribe at the AQHA Ranch Versatility World Show, volunteer at the AQHA Youth World Cup, and summer clinician in South America. Having also served as a Stock Horse clinician around the State of Texas and camp clinician at the University of Alabama, Paige has a passion for teaching youth and college students through the vehicle of equestrian sport.

Charles Long
Professor and Resident Director of Research
Texas A&M AgriLife Research and Extension Center – Overton
Appointed 1973
c-long@tamu.edu

B.S. [Animal Science] – Louisiana State University
Ph.D. [Animal Breeding] – Texas A&M University

Dr. Long plans, organizes and directs the agricultural research activities of the Overton Center, which focuses on horticulture, forages and livestock research. Emphasis is placed on scientific leadership, management of research programs and clientele interaction; research activities are coordinated with counterpart Extension programs.

Bill Mies
Visiting Professor and Professor Emeritus
Beef Cattle Production
wmies@tamu.edu

B.S. [Animal Science] – University of Illinois
M.S. [Animal Science] – Montana State University
Ph.D. [Animal Science] – University of Missouri

Dr. Mies retired as a beef feedlot consultant with the Global Beef Group of Elanco Animal Health and now teaches part-time in the Department of Animal Science. He previously worked in research and development of new animal drugs, experiment station management, commercial feedyard management and general management of a beef production company. During his work in feedlot management, he developed and operated a risk management program for Fronia Industries. In addition, he set up a marketing program to sell boxed beef directly to retailers. Dr. Mies then spent 14 years at Texas A&M University teaching livestock marketing, risk management, and feed yard management.
Since leaving Texas A&M he has worked in integrated beef production and animal data management. Dr. Mies has worked with the National Cattlemen's Beef Association as Chairman of the Research and Education Committee and advisor to the Value Based Marketing Task Force. He was the technical advisor to the Beef Quality Assurance Task Force for 20 years. Dr. Mies designed and implemented the Strategic Alliances Demonstration Project for NCBA which has been the template for many of the current day beef alliances. Dr. Mies has judged a number of livestock shows and worked as a consultant in a number of foreign countries.

Rhonda Miller  
Professor and Texas A&M AgriLife Research Faculty Fellow  
Meat Science  
Appointed 1988  
rmiller@tamu.edu

B.S., M.S., Ph.D. – Colorado State University

Dr. Miller teaches undergraduate and graduate courses in meat science and sensory science. In addition, she has directed the Sensory Testing Facility within the Department of Animal Science since 1988. Dr. Miller's research focuses on the quality, quantity, safety and usefulness of meat and meat products. In addition to her Animal Science role, Dr. Miller maintains an adjunct appointment with the Texas A&M University Department of Nutrition and Food Science.

Wes Osburn  
Associate Professor (Meat Science) and Associate Department Head for Academic Programs  
Appointed 2004 (Associate Professor); 2016 (Associate Head)  
osburnw@tamu.edu

B.S. [Agricultural Education], M.S. [Animal Science – Meat Science] – Texas A&M University  
Ph.D. [Animal Science] – University of Nebraska

In his role as Associate Head for Academic Programs, Dr. Osburn oversees administration of the undergraduate and graduate instructional programs in the Department, which involves working with faculty and staff throughout the College of Agriculture and Life Sciences, Texas A&M AgriLife Research and Texas A&M AgriLife Extension. He leads efforts in maintaining the excellence of our undergraduate and graduate programs by working effectively with and representing faculty to University and Agency administrators, staff and federal agency personnel and industry clientele through a demonstrated commitment to student relations, academic excellence and Extension education programs. As a meat science faculty member, Dr. Osburn works with Texas, national, and international meat processors on topics including processed meats, value-added products, food safety, and meat quality.

Joe Paschal  
Professor and Extension Livestock Specialist  
Texas A&M AgriLife Research and Extension Center – Corpus Christi  
Appointed 1986  
j-paschal@tamu.edu


Dr. Paschal is the Texas A&M AgriLife Extension Livestock Specialist serving counties in Extension Districts 10 (Southwest), 11 (Gulf Coast) and 12 (South Texas). He is a member of the graduate faculty at Texas A&M University and is an external professor at Texas A&M University – Kingsville. Dr. Paschal assists County Extension Agents in planning, conducting, developing and evaluating educational and applied research activities in livestock in Extension districts in South Texas. His work and interests focus on primarily animal breeding and genetics, but include reproduction, nutrition, management and marketing. In addition to his multiregional programming responsibilities, Dr. Paschal works closely with the Rio Grande Valley Beef Improvement Association Bull Gain and Heifer Development Program and is responsible for collecting and compiling the data for the American Brahman Breeders Association.
Carcass Merit Program and Bull Gain Test. He serves on advisory boards for several beef breed associations. He also writes Extension articles monthly for numerous producer publications. He has conducted educational programs in over 26 countries including North, Central and South America, Europe, South Africa and Australia.

Sushil Paudyal  
Instructional Assistant Professor  
Dairy Science  
Appointed 2019  
sushilpaudyal@tamu.edu

B.S. [Veterinary Science and Animal Husbandry – Tribhuvan University (Nepal)]  
M.S. [Animal Science] – West Texas A&M University  
Ph.D. [Animal Science] – Colorado State University

While pursuing his master's degree at West Texas A&M University, Dr. Paudyal served as a graduate research assistant with Texas A&M AgriLife Research in Amarillo. He obtained his doctorate at Colorado State University, specializing in dairy herd management. Dr. Paudyal's research interests focus on using herd and animal level data for decision making in dairy farms. His research utilizes innovative technologies to optimize production, health and wellbeing of dairy cattle. Dr. Paudyal's teaching responsibilities include DASC 418 (Feeding & Management of Dairy Cattle) and other courses related to dairy science, as well as leading the dairy judging and dairy challenge activities. Additionally, he serves as Texas A&M University's representative to the US Dairy Education & Training Consortium steering committee, which includes assistance with the annual six-week student training program. Dr. Paudyal also coordinates our internship program as part of the Department's emphasis on providing high impact learning experiences for Animal Science majors.

Juan Piñeiro  
Assistant Professor & Extension Dairy Specialist – Amarillo  
Appointed 2018  
juan.pineiro@ag.tamu.edu

DVM – University of La Plata, Buenos Aires, Argentina  
M.S., Ph.D. [Veterinary Preventive Medicine] – The Ohio State University

As Assistant Professor & Extension Dairy Specialist headquartered in Amarillo, Dr. Piñeiro is responsible for providing leadership and coordination for Extension educational programs in dairy management, as well as providing technical expertise, training, and teaching materials for county Extension agents, specialists, clientele, AgriLife Research, the Texas Veterinary Medical Diagnostic Laboratory and other state and federal agencies and other organizations across the state. At The Ohio State University, Dr. Piñeiro participated in the coordination and delivery of several Extension programs for farm personnel, veterinarians and consultants. He has provided lectures in bovine theriogenology, dairy cattle management and cattle handling and has mentored several undergraduate students with interest in food animal medicine.

Ky Pohler  
Assistant Professor  
Beef Cattle Production  
Appointed 2018  
kpohler@tamu.edu

B.S. [Animal Science] – Texas A&M University  
M.S., Ph.D. [Animal Science / College Teaching in Ag, minor] – University of Missouri

Prior to returning to Texas A&M, Dr. Pohler was on faculty at the University of Tennessee in the Department of Animal Science. His research interests focus on understanding the physiological and molecular mechanisms that control reproductive
efficiency in cattle. More specifically his lab is interested in the mechanisms that lead to embryonic and fetal mortality in cattle and development of management strategies to overcome these losses. Dr. Pohler contributes to the leadership of the Department's strategic direction in beef cattle focusing on an area of excellence in beef cattle associated with tropical and subtropical environments. Additionally, he provides support to our comprehensive distance education beef certificate program.

Shawn Ramsey  
Professor and Assistant Department Head for Undergraduate Programs  
Appointed 1995  
sramsey@tamu.edu  

B.S. [Animal Science] – Texas A&M University  
M.S., Ph.D. [Animal and Range Sciences] – New Mexico State University  
Dr. Ramsey teaches the introductory animal science class (ANSC 107, sheep and goat production (ANSC 414), and the wool and mohair judging class (ANSC 314). He also serves as the coordinator of the Texas A&M Wool Judging Team and the Departmental Study Abroad program. In addition, Dr. Ramsey serves as the Assistant Head for Undergraduate Programs to over 1,200 students enrolled in the Department of Animal Science. He also serves as the faculty coordinator for the Sheep and Goat Center and the Louis Pearce Pavilion. Additionally, Dr. Ramsey serves as one of the sheep and goat extension specialists for the state.

Ron Randel  
Professor, Regents Fellow and Texas A&M AgriLife Senior Faculty Fellow  
Texas A&M AgriLife Research and Extension Center – Overton  
Appointed 1974  
r-randel@tamu.edu  

B.S. – Washington State University  
Ph.D. – Purdue University  

Dr. Randel is an Animal Physiologist and serves on the graduate faculty. He conducts beef cattle research on reproductive efficiency, endocrine control of reproduction, stress responsiveness and temperament and prenatal stress.

Reid Redden  
Associate Professor and Extension Sheep & Goat Specialist  
Texas A&M AgriLife Research and Extension Center – San Angelo  
Appointed 2015  
reid.redden@ag.tamu.edu  

B.S. [Animal Science] – Texas A&M University  
M.S. [Reproductive Physiology] – New Mexico State University  
Ph.D. [Ruminant Nutrition] – Montana State University  

Dr. Redden provides statewide leadership in program development and delivery related to the production and management of sheep and goats and production of wool and mohair. He assists County Extension Agents and Program Area Committee members in effectively using Texas A&M AgriLife Extension’s program development process to implement relevant, in-depth programs in small ruminant production and management. Additionally, Dr. Redden provides professional development opportunities to increase Extension personnel knowledge and expertise in sheep and goats.
At Texas A&M University, Dr. Riggs was a Regents' Graduate fellow and received her Ph.D. through the Interdisciplinary Program in Genetics. She conducted postdoctoral work in radiation biophysics as a Texas Aerospace Fellow at the University of Houston and the NASA Johnson Space Center, and in carcinogenesis at the University of Texas MD Anderson Cancer Center (Science Park – Research Division). Her current research emphasizes analyses of global gene and protein expression and signaling relevant for beef cattle phenotypes, particularly meat quality and skeletal muscle attributes. She maintains an interest in the application of molecular tools for understanding gene function in rodent models, other food animals, and aquaculture species. Dr. Riggs currently teaches ANSC 624 (Mammalian Developmental Genetics), ANSC 481 (Senior Seminar) and co-teaches ANSC 351/651 (Current Issues in Animal Science). During the review period, she taught and led development of a NSF-funded course, PHIL 489-689 (Genomics & Society) that enabled undergraduate and graduate students to explore advances and implications of genomics technologies. She worked with collaborators in the Departments of Philosophy and Instructional Development to create and teach a fully online version of this course, with instructional modules now hosted by the National Academy of Engineering. In addition, Dr. Riggs has taught GENE 681, an interactive seminar course each semester for Genetics graduate students, and she also trains undergraduate researchers in Animal Science, Biochemistry, Biology and Genetics.

David Riley
Professor
Animal Breeding and Genetics
Appointed 2009
david-riley@tamu.edu

Dr. Riley teaches three graduate courses including Quantitative Genetics, Genetic Prediction, and Advanced Quantitative Genetics. Research efforts focus on the association of genes, gene combinations, and other molecular variants with beef cattle production traits, especially those traits related to reproduction and efficiency. Research interests include the incorporation of genomic information in traditional animal breeding strategies and prediction of breeding values using such information. Other research efforts include the assessment and quantification of the epigenetic variation in livestock traits, and the expression of heterosis by crossbred animals for important traits. Before joining Texas A&M University in 2009, he worked as Research Geneticist at the USDA, Agricultural Research Service, Subtropical Agricultural Research Station in Brooksville, FL, and earlier worked in swine breeding stock production, selection, and service.

Jim Sanders
Professor
Animal Breeding and Genetics
Appointed 1974
j-sanders1@tamu.edu

Dr. Sanders teaches undergraduate and graduate courses in animal breeding and conducts research in beef cattle genetics and breeding. His research has included systems analysis of beef cattle production, comparisons of cattle breeds for birth, growth, carcass and cow productivity traits, evaluation of genetic change
within cattle breeds, evaluation of hybrid vigor retention in *Bos indicus/Bos taurus* cattle, and identification of genes with major effects on birth, growth, carcass, disposition, and cow productivity traits in beef cattle. In recent years, much of the emphasis is on studying reciprocal differences in *Bos indicus/Bos taurus* cattle, with major attention to differences in birth weight and cow reproductive traits that appear to be due to source of the X-chromosome (presumably interacting with imprinted autosomal genes). Dr. Sanders is also involved with accumulating history of the Animal Science Department and working with the American Brahman Breeders Association to retrieve pedigree information lost by the Association.

**Carey Satterfield**  
Associate Professor  
Physiology of Reproduction  
Appointed 2000  
csatterfield@tamu.edu

B.S. [Animal Science], M.S., Ph.D. [Physiology of Reproduction] – Texas A&M University

Dr. Satterfield’s research interests are focused on the long-term consequences of maternal nutrition on fetal and postnatal growth and development using sheep as his primary animal model. In addition, Dr. Satterfield studies the role of nutraceuticals in fetal brown adipose tissue development and the ability of offspring to regulate their core body temperature during periods of cold stress. His teaching interests include general reproductive and placental physiology as well as fetal growth and development. Dr. Satterfield’s professional memberships include the Society for the Study of Reproduction.

**Jeff Savell**  
University Distinguished Professor and E.M. “Manny” Rosenthal Chair  
Meat Science  
Appointed 1976  
j-savell@tamu.edu

B.S., M.S., Ph.D. [Animal Science] – Texas A&M University

Dr. Savell teaches the introductory course in meat science (ANSC 307) where he has taught over 10,000 Aggies since 1982. He also teaches an undergraduate livestock and meat marketing class, a graduate course in carcass composition and quality, and team-teaches a graduate and undergraduate course in HACCP and a freshmen class on Texas Barbecue. Dr. Savell has chaired or co-chaired over 150 graduate students who have become leaders in academia, industry, and government. In addition, he conducts research on the quality, quantity, safety and usefulness of meat and meat products through his appointment with Texas A&M AgriLife Research.

**Jason Sawyer**  
Associate Professor and Associate Department Head for Operations  
Superintendent, McGregor Research Center  
Appointed 2003; Associate Head 2009  
j-sawyer@tamu.edu

B.S. [Rangeland Ecology and Management] – Texas A&M University  
M.S., Ph.D. [Beef Cattle Nutrition and Management] – New Mexico State University

Dr. Sawyer’s teaching responsibilities include undergraduate and graduate courses in beef cattle production and research methods for animal science. His research interests revolve around optimization of beef cattle production systems, with a special emphasis on stocker cattle production systems and intensified production management. Specific research interests include enhancing production efficiency in beef systems, manipulation of nutrient partitioning and utilization, and decision support for beef cattle production systems. In addition to his teaching and research commitments, Dr. Sawyer has managerial responsibility for the Department’s AgriLife Research Center at McGregor.
Chris Skaggs  
**Professor and San Antonio Livestock Exposition, Inc. Chair**  
**Associate Dean for Student Development,**  
**College of Agriculture and Life Sciences**  
**Appointed 1992**  
[cskaggs@tamu.edu](mailto:cskaggs@tamu.edu)

B.S. [Animal Science], B.S. [Agricultural Education] – Texas Tech University  
M.S. [Animal Science] – Kansas State University  
Ph.D. [Animal Science] – Iowa State University

Dr. Skaggs coordinates the introductory animal science laboratories, teaches AGLS 101 (Freshman Orientation) for the College, and co-teaches the livestock and meats evaluation courses. Skaggs also assists in recruitment efforts for the College, coordinates the college scholarship program and student professional development activities, coordinates student internships with the San Antonio Livestock Exposition and is liaison with major livestock shows of Texas. Dr. Skaggs devotes a considerable amount of time to live animal evaluation. He has judged numerous national shows including the National Western, North American International, San Antonio Livestock Exposition and Houston Livestock Show beef cattle shows, and he works with youth at hundreds of youth shows across the country. He serves as superintendent of the intercollegiate livestock judging contest and the steer show at the Houston Livestock Show and Rodeo, assistant superintendent of the 4-H/FFA livestock judging contest, beef cattle skillathon and steer show at the San Antonio Livestock Exposition and superintendent of the steer show at the State Fair of Texas.

Gary Smith  
**Visiting Professor**  
**Meat Science**  
[Gary.Smith@tamu.edu](mailto:Gary.Smith@tamu.edu)

B.S. [General Agriculture/Agriculture Education] – California State University (Fresno)  

Dr. Smith served as an Instructor and Assistant Professor at Washington State University (1961-1965, 1968-1969), an Associate Professor, Professor, Section Leader and Department Head at Texas A&M University (1969-1990) as well as Professor, University Distinguished Professor and Holder of the Ken and Myra Monfort Endowed Chair in Meat Science at Colorado State University (1990-2010). His research interests include red meat safety, carcass evaluation and grading; composition, quality, and palatability of red meat; and packaging and retailing of red meat. Dr. Smith is presently a member of the Boards of Directors of Food Safety Net Services, Where Food Comes From, and Nolan Ryan Beef Company as well as on Advisory Boards of US Meat Industry Hall of Fame, Progressive Beef and JBS-USA.

Steve Smith  
**Regents Professor**  
**Meat Science**  
[ssmith@tamu.edu](mailto:ssmith@tamu.edu)

B.S. [Biology] – California State College  
Ph.D. [Metabolic Physiology] – University of California, Davis

Dr. Smith teaches meat science, nutrition and physiological nutrition courses. He also conducts research on the growth and development of adipose tissue, particularly in the bovine species. He has investigated the limitation of cattle marble and has used his background in molecular biology to investigate lipid metabolism in the bovine muscle. Dr. Smith is a member of the Faculty of Food Science and Technology and the Faculty of Nutrition.
Jennifer Spencer  
**Assistant Professor & Extension Dairy Specialist - Stephenville**  
**Appointed 2018**  
[jennifer.spencer@ag.tamu.edu](mailto:jennifer.spencer@ag.tamu.edu)

B.S., M.S. [Animal Science], Ph.D. [Animal Physiology] – University of Idaho

Dr. Spencer joined the faculty of the Animal Science Department in August 2018 upon completion of her doctorate in animal physiology with an emphasis on dairy cattle reproductive physiology. Since 2012, she has received numerous awards and has been recognized from the departmental to the national level. Dr. Spencer is involved in numerous societies and has been involved with the international dairy industry, including assistance with the owners of the first dairy farm in Cambodia in 2015.

Matt Taylor  
**Associate Professor**  
**Meat Science**  
**Appointed 2007**  
[matt_taylor@tamu.edu](mailto:matt_taylor@tamu.edu)

B.S. [Food Science], B.A. [Sociology], M.S. [Food Science] – North Carolina State University  
Ph.D. [Food Science and Technology] – University of Tennessee-Knoxville

Dr. Taylor's primary research interests are in the utilization and mechanisms of food antimicrobials to inhibit bacterial foodborne pathogens. Specifically, research is conducted to investigate and determine the manner by which food antimicrobials inhibit microbial pathogens. Additionally, research is conducted that seeks to overcome obstacles to the use of food antimicrobials in some product by the encapsulation of food antimicrobials. Dr. Taylor is currently participating and leading collaborative research projects with faculty in the Departments of Horticultural Sciences, Nutrition and Food Science, Poultry Science, and even Chemical Engineering, in addition to multi-institutional research projects with scientists from around the U.S. Dr. Taylor is the lead instructor for the undergraduate courses DASC/FSTC 326 (Food Bacteriology Lecture) and DASC/FSTC 327 (Food Bacteriology Laboratory). He team-teaches graduate courses in food safety and usage of nanotechnologies in foods processing and development. He is also a member of the Graduate Faculty of the Department of Nutrition and Food Science.

Luis Tedeschi  
**Professor and Texas A&M AgriLife Research Faculty Fellow**  
**Animal Nutrition**  
**Appointed 2005**  
[luis.tedeschi@tamu.edu](mailto:luis.tedeschi@tamu.edu)

B.S. [Agronomy Engineer], M.S. [Animal and Forage Sciences] – University of São Paulo  
Ph.D. [Animal Science] – Cornell University

Dr. Tedeschi teaches ANSC 604 Ruminant Nutrition, ANSC 625 Precision Diet Formulation, ANSC 615 Brazil Comparative Ruminant Production, and ANSC 489/689 Introduction to System Dynamics for Agriculture and Life Sciences for undergraduate and graduate students. He conducts research on energy and nutrient requirements of grazing and feedlot animals, growth biology and bioenergetics, chemical composition and kinetics of fermentation of feeds, modeling and simulation of decision support systems, and evaluation of models. He has collaborated with several researchers overseas to develop models for small ruminants (sheep and goats). He utilizes System Dynamics concepts applied to nutrition. Since 2013, Dr. Tedeschi's work has been cited more than 3,400 times, and he has a Google's Scholar H-index of 29 and I10-index of 98.
Mike Tomaszewski  
Visiting Professor and Professor & Extension Dairy Specialist Emeritus  
m-tomaszewski@tamu.edu

B.S. [Animal Science] – Colorado State University  
M.S. [Animal Science] – University of Massachusetts  
Ph.D. [Animal Science] – North Carolina State University

Dr. Tomaszewski coordinates the US Dairy Education and Training Consortium, which is a cooperative effort among 14 universities to provide courses in large herd management. He has taught a campus-based, as well as web-based, introductory dairy management course. He also coaches the TAMU Dairy Challenge Team at regional and national contests. Dr. Tomaszewski previously served as a Fulbright Specialist in Paraguay and Cambodia.

Tom Welsh  
Professor and Texas A&M AgriLife Research Faculty Fellow  
Physiology of Reproduction  
Appointed 1983  
twelsh@cvm.tamu.edu


Dr. Welsh teaches undergraduate courses (ANSC 242, Growth and Development of Livestock* and ANSC 481, Senior Seminar) and graduate courses (ANSC 609, Physiology of Growth and Stress in Livestock and team-teaches ANSC 631, Physiology of Reproduction I). His Endocrine Physiology Research Laboratory studies how stress and temperament are linked to reproductive, metabolic and immune functions. Via intramural and extramural support, Dr. Welsh and his graduate students have researched with collaborators the immuno-endocrine physiology and reproductive physiology of various animals such as rodents, horses, pigs, sheep and cattle. A recent area of emphasis is the study of the influence of prenatal stress on postnatal health, wellbeing and performance of cattle.

Sarah White  
Assistant Professor  
Equine Science  
Appointed 2016  
shwhite@tamu.edu

B.S., M.S., Ph.D. [Animal Sciences] – University of Florida

Dr. White completed two years of postdoctoral training in muscle physiology in the College of Health Sciences at the University of Kentucky where she had two primary research interests: 1) investigating the role of skeletal muscle satellite cells during hypertrophy in growing and mature mice, and 2) characterizing the lower limb skeletal muscle in patients with peripheral artery disease with the aim of developing non-invasive interventions to improve quality of life. Dr. White's main passion is discovering means by which to improve performance and reduce injury in equine athletes. Her primary focus is mitochondrial adaptations to diet and exercise, and skeletal muscle bioenergetics. Dr. White teaches undergraduate and graduate courses in Equine Exercise Physiology and Equine Nutrition.
Dr. Whitney's interdisciplinary research program is directed toward helping producers (especially in the Edward's Plateau Region of Texas) make informed management decisions related to feeding livestock. The primary objective of his Nutrition Program is to reduce costs associated with feeding livestock by (1) increasing livestock production efficiency; (2) increasing the value of underutilized feed sources such as dried distiller's grains and ground juniper trees; and (3) using plant secondary compounds to enhance ruminal function, bypass protein, animal health and reduce internal parasite viability. Secondary objectives are to enhance animal fiber, carcass and meat characteristics. Dr. Whitney maintains an adjunct appointment with San Angelo State University and Tarleton State University.

Tryon Wickersham
Associate Professor
Animal Nutrition
Appointed 2006
tryon@tamu.edu

B.S. [Animal Science] – Texas A&M University
M.S., Ph.D. [Ruminant Nutrition] – Kansas State University

Dr. Wickersham teaches undergraduate and graduate level courses and laboratories in animal nutrition and beef cattle production. His research focuses on coproduct utilization in beef cattle systems, forage utilization, and nitrogen metabolism.

Gary Williams
Professor, Regents Fellow and Texas A&M AgriLife Research Faculty Fellow
Research Leader, Texas A&M AgriLife Research Station – Beeville
Appointed 1984
gwilliams@tamu.edu

B.S., M.S. [Animal Science] – New Mexico State University
Ph.D. [Animal Physiology] – University of Arizona

Dr. Williams' basic research interests focus on neuroendocrine mechanisms that mediate the nutritional programming of puberty in the bovine female. This work has been supported continuously by federal funding (USDA-AFRI) to Williams and his colleagues that has totaled $1 million during the last five years. Additional research explores the neuroendocrine mechanisms regulating, and pharmacological control of, seasonal reproduction in the mare. Applied research efforts and public outreach have included the development and application of 'Bee Synch,' a technique for successful synchronization of ovulation and appointment breeding in Bos indicus-influenced cattle.
Guoyao Wu
University Distinguished Professor, University Faculty Fellow and Texas A&M AgriLife Research Senior Faculty Fellow
Animal Nutrition
Appointed 1991
g-wu@tamu.edu

B.S. [Animal Science] – South China Agricultural University
M.S. [Animal Nutrition] – Beijing Agricultural University
M.S., Ph.D. [Animal Biochemistry] – University of Alberta

Dr. Wu teaches graduate courses in protein metabolism and nutritional biochemistry. Dr. Wu conducts research in protein and amino acid metabolism at molecular, cellular, and whole body levels. Animal models used in his research include cattle, chicks, pigs, rats and sheep. In addition to his appointment in Animal Science, Dr. Wu also holds appointments with the Graduate Faculty of Nutrition, the Department of Systems Biology and Translational Medicine and the Department of Veterinary Integrative Biosciences.

Jennifer Zoller
Assistant Professor and Extension Horse Specialist
Equine Science
Appointed 2017
jennifer.zoller@tamu.edu


Dr. Zoller provides statewide leadership for planning, implementing, conducting and evaluating Extension education programs in equine sciences for both adult and youth audiences. She also assists County Extension Agents and Program Area Committee members to effectively meet the needs of stakeholders and clientele. As an Extension horse specialist, Zoller gives leadership to several programs including the State 4-H Horse Show, the Summer Horsemanship School Program, and various horse judging competitions across the state.
## Doctoral, Masters and Baccalaureate

### Student Enrollment

Table 6.1 provides the number of applications, admits and enrolled students (M or F) in ANSC undergraduate and graduate degree programs for the most recent five years. General trends indicate that numbers of applicants increased across all degree programs as well as the number admitted/enrolled.

Table 6.1 Applications and enrollment number for undergraduate and graduate programs.

<table>
<thead>
<tr>
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<th></th>
<th>Summary</th>
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</thead>
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<td>Admitted Count</td>
<td>Enrolled Count</td>
<td>Application Count</td>
<td>Admitted Count</td>
</tr>
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<td></td>
<td></td>
<td></td>
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<td>4</td>
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<td>3</td>
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<td>2837</td>
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### Female

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</table>

### Male

<table>
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<tr>
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<th>Masters</th>
<th>Male</th>
<th>Enrolled Count</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
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### Summary

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<th>Admitted Count</th>
<th>Enrolled Count</th>
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</table>

---

Total student enrollment of both undergraduates and graduates entering Fall 2018 is currently recorded at 1250 and 130, respectively. For the most recent five years, the department has experienced a 19% and 20% overall increase in undergraduate and graduate enrollment, respectively (Table 6.2). Data presented in Table 6.2 provide the five year percent change in enrollment for our B.S., M.S. and Ph.D. programs.

Table 6.2  Student enrollment by department (based on Fall enrollments).

<table>
<thead>
<tr>
<th>Major</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>5 yr change (%)</th>
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<td>1076</td>
<td>1111</td>
<td>1149</td>
<td>1209</td>
<td>19%</td>
</tr>
<tr>
<td>Total Masters</td>
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<td>86</td>
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<tr>
<td>Total Ph.D.</td>
<td>40</td>
<td>44</td>
<td>51</td>
<td>47</td>
<td>51</td>
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<tr>
<td>Total</td>
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<td>1190</td>
<td>1249</td>
<td>1282</td>
<td>1339</td>
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Data provided by DARS Enrollment Profile Dashboard - July 2018.
Table 6.3  Student enrollment by major.

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<th>Major</th>
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<th>Graduate</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>5 yr change (%)</th>
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<td>ANSC</td>
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<td>1076</td>
<td>1111</td>
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<td>19%</td>
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<tr>
<td>Masters</td>
<td>7</td>
<td>6</td>
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<td>Ph.D.</td>
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<td>4</td>
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<td>6</td>
<td>4</td>
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<tr>
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<td></td>
<td>43%</td>
</tr>
<tr>
<td>Masters</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>7</td>
<td></td>
<td></td>
<td>75%</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
<td>-17%</td>
</tr>
</tbody>
</table>

Data provided by DARS Enrollment Profile Dashboard - July 2018.

**Student Diversity/Demographics**

Data for undergraduate and graduate enrollment by ethnicity and gender are reported in Tables 6.4 and 6.5. The number of undergraduates students identified as M/F-white, M/F black and Hispanic undergraduate students increased from Fall 2013-Fall 2017. Female student numbers were greater than male students across all ethnicity groups for undergraduate and graduate degree programs (Table 6.5 and 6.6).
Table 6.4  Animal Science undergraduate student enrollment by ethnicity and gender.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>574</td>
<td>181</td>
<td>13</td>
<td>1</td>
<td>145</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>592</td>
<td>178</td>
<td>21</td>
<td>2</td>
<td>176</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>619</td>
<td>191</td>
<td>21</td>
<td>4</td>
<td>186</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>612</td>
<td>208</td>
<td>29</td>
<td>5</td>
<td>197</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>648</td>
<td>212</td>
<td>28</td>
<td>8</td>
<td>210</td>
</tr>
</tbody>
</table>

Data provided by DARS Enrollment Profile Dashboard - July 2018.

Table 6.5  Animal Science graduate student enrollment by ethnicity and gender.

<table>
<thead>
<tr>
<th></th>
<th>White</th>
<th>International</th>
<th>Hispanic</th>
<th>American Indian</th>
<th>Black</th>
<th>Multi-racial excluding Black</th>
<th>Unknown/Not Reported</th>
<th>Yearly Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>23</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>47</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>66</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>Total</td>
<td>70</td>
<td>12</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>25</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>55</td>
<td>7</td>
<td>9</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>78</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>Total</td>
<td>80</td>
<td>15</td>
<td>12</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>114</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>31</td>
<td>12</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>68</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>90</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>Total</td>
<td>99</td>
<td>20</td>
<td>12</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>25</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>74</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>92</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>Total</td>
<td>99</td>
<td>19</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>25</td>
<td>14</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>66</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>88</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>Total</td>
<td>91</td>
<td>22</td>
<td>11</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>130</td>
</tr>
</tbody>
</table>

Data provided by DARS Enrollment Profile Dashboard - July 2018.
Table 6.6  Fall 2017 Animal Science graduate student enrollment by degree and gender.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Masters</th>
<th>Doctorate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>57</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>31</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
<td>51</td>
<td>130</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Retention Rates

The following tables provide data for undergraduate retention and probation rates (Table 6.7 and 6.8) and graduate retention rates (tables 6.9 and 6.10) and where appropriate, compares these rates to college and university retention rates. Retention rates for first year ANSC undergraduate majors, first time in college, were consistently higher than the college average, but were ~ 10% less on average than the university retention rates (Table 6.7). Undergraduate probation rates (Table 6.8) indicate a slight decrease in the percent of students on probation during the past five years with an overall average of 2.86%.

Table 6.7  First-year major (ANSC) undergraduate retention rates for first-time in college student (FTIC).

<table>
<thead>
<tr>
<th>Term</th>
<th>ANSC Retention %</th>
<th>COALS Retention %</th>
<th>TAMU Retention %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2012-Fall 2013</td>
<td>80</td>
<td>66</td>
<td>91</td>
</tr>
<tr>
<td>Fall 2013-Fall 2014</td>
<td>81</td>
<td>62</td>
<td>90</td>
</tr>
<tr>
<td>Fall 2014-Fall 2015</td>
<td>79</td>
<td>63</td>
<td>90</td>
</tr>
<tr>
<td>Fall 2015-Fall 2016</td>
<td>83</td>
<td>66</td>
<td>91</td>
</tr>
<tr>
<td>Fall 2016-Fall 2017</td>
<td>83</td>
<td>70</td>
<td>92</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Table 6.8  Animal Science UG majors on probation Head counts: Sub 2.0 GPR.

<table>
<thead>
<tr>
<th>Term</th>
<th>Probation Head Count</th>
<th>Total Head Count</th>
<th>% On Probation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>33</td>
<td>1013</td>
<td>3.30%</td>
</tr>
<tr>
<td>Spring 2014</td>
<td>33</td>
<td>944</td>
<td>3.50%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>36</td>
<td>1074</td>
<td>3.40%</td>
</tr>
<tr>
<td>Spring 2015</td>
<td>32</td>
<td>972</td>
<td>3.30%</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>29</td>
<td>1110</td>
<td>2.60%</td>
</tr>
<tr>
<td>Spring 2016</td>
<td>31</td>
<td>1043</td>
<td>3.00%</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>22</td>
<td>1147</td>
<td>1.90%</td>
</tr>
<tr>
<td>Spring 2017</td>
<td>23</td>
<td>1077</td>
<td>2.10%</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>31</td>
<td>1207</td>
<td>2.60%</td>
</tr>
<tr>
<td>Average</td>
<td>30</td>
<td>1065</td>
<td>2.86%</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.
First year masters student retention and third year cohort graduation rates were equal to or higher than the college averages from Fall 2011-2014 (Table 6.9). The same trends were observed for first-year doctoral student retention and third and fifth-year graduation rates compared to the college (Table 6.10).

Table 6.9 First-year masters student retention rate and third-year graduation rate for ANSC and College of Agriculture and Life Sciences for cohorts entering 2010-2014.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>First Year ANSC Retention (%)</th>
<th>First Year COALS Retention (%)</th>
<th>Third Year ANSC Graduation (%)</th>
<th>Third Year COALS Graduation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2010</td>
<td>81%</td>
<td>84%</td>
<td>60%</td>
<td>62%</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>96%</td>
<td>79%</td>
<td>77%</td>
<td>58%</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>86%</td>
<td>86%</td>
<td>78%</td>
<td>66%</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>95%</td>
<td>81%</td>
<td>81%</td>
<td>68%</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>86%</td>
<td>88%</td>
<td>70%</td>
<td>68%</td>
</tr>
<tr>
<td>Average</td>
<td>89%</td>
<td>84%</td>
<td>73%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Table 6.10 First-year doctoral student retention rate and third and fifth-year graduation rate for ANSC and College of Agriculture and Life Sciences for cohorts entering 2010-2014.

<table>
<thead>
<tr>
<th>Cohort</th>
<th>First Year ANSC Retention (%)</th>
<th>First Year COALS Retention (%)</th>
<th>Third Year ANSC Graduation (%)</th>
<th>Third Year COALS Graduation (%)</th>
<th>Fifth Year ANSC Graduation (%)</th>
<th>Fifth Year COALS Graduation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2010</td>
<td>92%</td>
<td>85%</td>
<td>23%</td>
<td>8%</td>
<td>53%</td>
<td>38%</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>90%</td>
<td>88%</td>
<td>30%</td>
<td>15%</td>
<td>50%</td>
<td>42%</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>66%</td>
<td>85%</td>
<td>33%</td>
<td>13%</td>
<td>55%</td>
<td>43%</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>90%</td>
<td>83%</td>
<td>10%</td>
<td>7%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>100%</td>
<td>90%</td>
<td>12%</td>
<td>9%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Average</td>
<td>88%</td>
<td>86.1%</td>
<td>52%</td>
<td>26.6%</td>
<td>52%</td>
<td>26.6%</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.
**Number of Degrees Per Year**

Table 6.11 provides the number of undergraduate degrees. Number of graduate degrees awarded by major shown in table 6.12.

Table 6.11  Number of undergraduate degrees awarded with average GPA at graduation.

<table>
<thead>
<tr>
<th>Majors</th>
<th>ANSC</th>
<th>COALS</th>
<th>TAMU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Semester</td>
<td>Avg. GPA</td>
<td># Degrees</td>
</tr>
<tr>
<td></td>
<td>Fall 2013</td>
<td>3.057</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td>Spring 2014</td>
<td>3.1</td>
<td>126</td>
</tr>
<tr>
<td></td>
<td>Fall 2014</td>
<td>3.094</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Spring 2015</td>
<td>3.203</td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>Fall 2015</td>
<td>3.072</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Spring 2016</td>
<td>3.264</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Fall 2016</td>
<td>3.047</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>Spring 2017</td>
<td>3.218</td>
<td>132</td>
</tr>
<tr>
<td></td>
<td>Fall 2017</td>
<td>3.203</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>Average GPA/ Total Degrees</td>
<td>3.12</td>
<td>970</td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Table 6.12  Number of graduate student degrees awarded by major 2012-2017.

<table>
<thead>
<tr>
<th>Level of Degree</th>
<th>Degree</th>
<th>Major</th>
<th>2012-13</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>M.Ag.</td>
<td>ANSC</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>M.S.</td>
<td>ANBR</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>M.S.</td>
<td>ANSC</td>
<td>16</td>
<td>10</td>
<td>12</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>M.S.</td>
<td>PREP</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>EQIM</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total Masters</td>
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<td>19</td>
<td>22</td>
<td>29</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Doctoral</td>
<td>ANBR</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ANSC</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>PREP</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Doctoral</td>
<td>7 6</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary All Degrees</td>
<td></td>
<td>32</td>
<td>25</td>
<td>28</td>
<td>36</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.
Graduation Rates
The four, five and six year major (ANSC) undergraduate graduation rates for first-time in college students (FTIC) averaged 51.0, 62.5 and 62.3%, respectively (Tables 6.13, 6.14 and 6.15).

Table 6.13  Four-year major (ANSC) undergraduate graduation rates for first-time in college students (FTIC).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>53</td>
<td>142</td>
<td>52</td>
<td>171</td>
<td>50</td>
<td>227</td>
<td>49</td>
<td></td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Table 6.14  Five-year major (ANSC) undergraduate graduation rates for first-time in college students (FTIC).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td>61</td>
<td>134</td>
<td>68</td>
<td>142</td>
<td>58</td>
<td>171</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Table 6.15  Six-year major (ANSC) undergraduate graduation rates for first-time in college students (FTIC).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td>Cohort</td>
<td>Graduation</td>
<td></td>
</tr>
<tr>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>67</td>
<td>110</td>
<td>62</td>
<td>103</td>
<td>58</td>
<td>142</td>
<td>59</td>
<td></td>
</tr>
</tbody>
</table>

Data provided by OIEE/DARS - July 2018.

Average Time to Degree for Baccalaureate and Graduate Students (Most Recent Five Years)
The breakout of academic year, degree, major and year to degree is provided in Table 6.16. A summary of these data are found in Table 6.16a. Some ANSC faculty are also members of the graduate faculty of Biotechnology, Food Science, and Genetics, serving as chair or co-chair for students in those degree programs during the most recent five years. The time to degree averages for students advised by ANSC faculty for these programs are highlighted in yellow (Table 6.16) and average time to degree data is calculated separately for those degrees (Table 6.16a).

Time to degree averages for the baccalaureate degree were slightly over 4 years (4.06). For masters students, ANBR degree students took the longest to graduate (3.15 years), while the Equine Industry Management Program (EQIM) took the shortest time (1.88 years). It should be noted that the EQIM course is a structured two year cohort non thesis program. For doctoral students, ANSC degree students took the longest to attain their degree (5.58 years), while students in ANBR attained their degree in a shorter time-frame (4.25 years).
Table 6.16  Undergraduate and graduate student average time to degree (most recent five years).

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Level of Degree (Inventory)</th>
<th>Major</th>
<th>Entry Type</th>
<th>Degree Count</th>
<th>Year to Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>Baccalaureate</td>
<td>ANSC</td>
<td>UG</td>
<td>118</td>
<td>4.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANBR</td>
<td>Graduate</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>4</td>
<td>6.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GENE</td>
<td>Graduate</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>1</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>ANBR</td>
<td>Graduate</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>23</td>
<td>2.59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GENE</td>
<td>Graduate</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>ANBR</td>
<td>Graduate</td>
<td>3</td>
<td>2.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>14</td>
<td>2.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FSTC</td>
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<td>1</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
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<td>2</td>
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<tr>
<td>2013-14</td>
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<td>UG</td>
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<td></td>
<td></td>
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<td>Graduate</td>
<td>4</td>
<td>6.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
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<td>5</td>
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<td></td>
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<td>ANBR</td>
<td>Graduate</td>
<td>3</td>
<td>2.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>14</td>
<td>2.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FSTC</td>
<td>Graduate</td>
<td>1</td>
<td>10.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>2</td>
<td>2</td>
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<td>UG</td>
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<td>4.62</td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>ANBR</td>
<td>Graduate</td>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>16</td>
<td>2.5</td>
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<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
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<td>2.12</td>
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<td>ANBR</td>
<td>Graduate</td>
<td>4</td>
<td>3.75</td>
</tr>
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<td></td>
<td>ANSC</td>
<td>Graduate</td>
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<td>3.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BIOT</td>
<td>Graduate</td>
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<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>3</td>
<td>2.83</td>
</tr>
<tr>
<td>2015-16</td>
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<td>ANSC</td>
<td>UG</td>
<td>171</td>
<td>3.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>6</td>
<td>5.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FSTC</td>
<td>Graduate</td>
<td>3</td>
<td>6.67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Doctoral</td>
<td>ANBR</td>
<td>Graduate</td>
<td>4</td>
<td>3.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ANSC</td>
<td>Graduate</td>
<td>22</td>
<td>3.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BIOT</td>
<td>Graduate</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PREP</td>
<td>Graduate</td>
<td>3</td>
<td>2.83</td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>ANBR</td>
<td>Graduate</td>
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<td>2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BIOT</td>
<td>Graduate</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EQIM</td>
<td>Graduate</td>
<td>4</td>
<td>1.88</td>
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</table>

Data provided by OIEE/DARS - September 2018.
Table 6.16a  Time to degree averages for undergraduate and graduate students (most recent five years).

<table>
<thead>
<tr>
<th>Summary Table</th>
<th>5 years</th>
<th>Time to Degree</th>
</tr>
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<td>2013-2017</td>
<td>Averages</td>
</tr>
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<td>Baccalaureate</td>
<td>ANSC</td>
<td>4.06</td>
</tr>
<tr>
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<td>ANBR</td>
<td>3.15</td>
</tr>
<tr>
<td>Masters</td>
<td>ANSC</td>
<td>2.60</td>
</tr>
<tr>
<td></td>
<td>PREP</td>
<td>2.36</td>
</tr>
<tr>
<td></td>
<td>EQIM</td>
<td>1.88</td>
</tr>
<tr>
<td></td>
<td>ANBR</td>
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<td>ANSC</td>
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<td></td>
<td>PREP</td>
<td>5.30</td>
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<tr>
<td>Other</td>
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</tr>
<tr>
<td>Masters</td>
<td>BIOT</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>FSTC</td>
<td>6.50</td>
</tr>
<tr>
<td>Doctoral</td>
<td>FSTC</td>
<td>6.67</td>
</tr>
<tr>
<td></td>
<td>GENE</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Data compiled by ANSC Associate Head Academic Programs.

**Average Institutional Financial Support Provided**

The average institutional financial support for graduate students is shown in Table 6.17, while the percentage of full-time graduate students with institutional financial support is found in Table 6.18.

Graduate student support comes from three primary funding sources – teaching research and extension. Teaching funds were the primary source of graduate student funding until FY2017 when research funding surpassed teaching. Students on average received an increase of over $2,200.00 per year from FY 2016 to FY 2017. The minimum for a 0.5 assistantship rate for MS students is $15,600.00 and for Ph.D. students is $17,400.00.

Table 6.17  Average institutional financial support provided to M.S. and Ph.D. graduate students (ANSC, ANBR, PREP).

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>$430,517</td>
<td>$551,183</td>
<td>$506,280</td>
<td>$550,629</td>
<td>$603,198</td>
</tr>
<tr>
<td>Research</td>
<td>$261,289</td>
<td>$263,074</td>
<td>$336,245</td>
<td>$396,971</td>
<td>$620,033</td>
</tr>
<tr>
<td>Extension</td>
<td>$-</td>
<td>$-</td>
<td>$-</td>
<td>$52,500</td>
<td>$29,800</td>
</tr>
<tr>
<td>Totals</td>
<td>$691,806</td>
<td>$814,257</td>
<td>$842,525</td>
<td>$1,000,100</td>
<td>$1,253,031</td>
</tr>
<tr>
<td>Grad Student total</td>
<td>95</td>
<td>110</td>
<td>132</td>
<td>131</td>
<td>127</td>
</tr>
<tr>
<td>Average per student</td>
<td>7282.17</td>
<td>7402.34</td>
<td>6382.76</td>
<td>7634.35</td>
<td>9866.38</td>
</tr>
</tbody>
</table>

Data compiled by Department of Animal Science Business Office - September 2018
Percentage of Full Time Students with Institutional Financial Support
The percentage of full-time graduate students receiving financial support increase from Fall 2012 to Fall 2016 and is 79% for Fall 2016. This support comes from teaching, research, Extension fellowships and scholarships.

Table 6.18  Percentage of full time graduate students and postdocs with institutional financial support.

<table>
<thead>
<tr>
<th>Fall</th>
<th>GSS Reporting Year</th>
<th>Level</th>
<th>Headcount</th>
<th>Total Full-Time Headcount Enrollment</th>
<th>% Full-Time</th>
<th>Total HC Receiving Support</th>
<th>% Receiving Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>2013</td>
<td>M.S. and Ph.D.</td>
<td>101</td>
<td>92</td>
<td>91%</td>
<td>61</td>
<td>66.3%</td>
</tr>
<tr>
<td>2012</td>
<td>2013</td>
<td>PostDoc</td>
<td>1</td>
<td>1</td>
<td>100.0%</td>
<td>1</td>
<td>100.0%</td>
</tr>
<tr>
<td>2013</td>
<td>2014</td>
<td>M.S. and Ph.D.</td>
<td>114</td>
<td>93</td>
<td>92%</td>
<td>66</td>
<td>71.0%</td>
</tr>
<tr>
<td>2013</td>
<td>2014</td>
<td>PostDoc</td>
<td>1</td>
<td>1</td>
<td>100.0%</td>
<td>1</td>
<td>100.0%</td>
</tr>
<tr>
<td>2014</td>
<td>2015</td>
<td>M.S. and Ph.D.</td>
<td>138</td>
<td>90</td>
<td>65%</td>
<td>74</td>
<td>82.2%</td>
</tr>
<tr>
<td>2014</td>
<td>2015</td>
<td>PostDoc</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>2015</td>
<td>2016</td>
<td>M.S. and Ph.D.</td>
<td>133</td>
<td>98</td>
<td>74%</td>
<td>82</td>
<td>83.7%</td>
</tr>
<tr>
<td>2015</td>
<td>2016</td>
<td>PostDoc</td>
<td>2</td>
<td>2</td>
<td>100.0%</td>
<td>2</td>
<td>100.0%</td>
</tr>
<tr>
<td>2016</td>
<td>2017</td>
<td>M.S. and Ph.D.</td>
<td>130</td>
<td>92</td>
<td>71%</td>
<td>73</td>
<td>79.3%</td>
</tr>
<tr>
<td>2016</td>
<td>2017</td>
<td>PostDoc</td>
<td>2</td>
<td>2</td>
<td>100.0%</td>
<td>2</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Data compiled by OIEE/DARS - September 2018 from NSF Graduate Student Survey (GSS) data.

Table 6.19  Undergraduate scholarships.

<table>
<thead>
<tr>
<th></th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Scholarships</td>
<td>135</td>
<td>132</td>
<td>129</td>
<td>114</td>
</tr>
<tr>
<td># of Students Awarded</td>
<td>124</td>
<td>128</td>
<td>124</td>
<td>109</td>
</tr>
<tr>
<td>Total Funds</td>
<td>$121,300</td>
<td>$114,525</td>
<td>$116,500</td>
<td>$119,250</td>
</tr>
</tbody>
</table>

ANSC Undergraduate/Graduate Scholarships
- Cee Cee & Jim Candler ’68 Endowment
- Jim Candler Family Endowed Sch - Undergrad
- Jim Candler Family Endowed Sch - Grad
- McGee Family Scholarship
- Simon Family Scholarship
- Cartwright Scholarship Fund
- R E Leighton Memorial Scholarship
- Dr Harold W Franke End Scholarship
- Sarah Jardine & Harold Grafa Scholarship
- HAW Farms Scholarship
- Nutrition Service Associates S
- Trey Willey Memorial Scholar
- Rudy Roeder Beef Scholarship
- Dorothy & JC Miller Scholarship
- COALS Smith Endowed Scholarship
- JT & Katie White Scholarship Fund
- Johnson Cattle Company
- Ed F Smith ’41 Beef Cattle/Ranch Scholarship
- Boleman Family Scholarship
- Charles B Smith Scholarship
- COADC Charles D Baumbach ’95 Endowment
- Reba & Kenneth McGee COALS
- Dr. Jim Bassett Scholarship
- Rene R Stewart ’92 Memorial Endowment
- Shawn & Kristi Ramsey Scholarship
- Henry R Hattie Mae New Scholarship
- Justin & Jennifer Kotzur Scholarship
- Col Walter S Britten Scholarship
- Coastal Cattle Assn Scholarship
- Beef Cattle Shortcourse Scholarship
- Peterson, Harry L ’26 End Scholarship
- Ruth F & Wilborn S Gibbs Scholarship
- Gena Lyn Thorton Memorial Scholarship
- Horse Judging Scholarship
- Roy & Hattie Hinnant Memorial
- Ronald L Richter COALS Endowed
- Heston McBride ’43 Scholarship
- Kim Candler McCuiston ’01 & Co
- Louis & Constance Fields School - Undergrad
- Louis & Constance Fields School - Grad

Department of Animal Science Academic Program Review
• Rodney Johnson Memorial Scholarship
• Dan F Jones Memorial Fund Scholarship
• Gary Potter Scholarship
• Frank C Litterest Animal Science Scholarship
• C D Doc McEver Memorial Scholarship
• A M Meekma Memorial Scholarship
• Jack Peoples Memorial Scholarship
• Vikki Owen Memorial Scholarship
• Raes Scholarship
• John K Riggs Scholarship
• Wesley Richardson Memorial Scholarship
• Saddle & Sirloin Club President
• Oscar Schmidt Research Development Fund
• Gary & Kay Smith Meat Judging
• Ward Smith Memorial Scholarship
• Royal W Snyder Scholarship
• MM Ed F Kruse ’49 Student Development Fund
• Lawrence C Breazeale ’30 Endowment
• Encore Visions
• Ranch House Designs
• Southwest Meat Assoc Foundation
• Suppliers Assn SWMPA Scholarship
• Dr T D Tanksley Scholarship
• Texas Pork Producers Assoc Scholarship
• Thomasen Animal Ethology Scholarship
• D W Williams Scholarship
• Sharon A Wilson Memorial Scholarship
• Dr L Wythe Livst Jdg Team Mem Scholarship

• Mr & Mrs Shannon Carpenter Scholarship
• Davis J & L Dairy Production Scholarship
• Dr I W Rupel School Dairy Science
• Leonard A E Beef Scholarship
• John W McNeill Animal Science
• COADAC Hutcheson End Sch In ANS
• Smikids Meat Industry
• C A Mewis Scholarship
• Howard H Hesby Scholarship
• V8 Cattle Scholarship
• Therapeutic Riding Program
• Frank & Skip Thornton Scholars
• George E Love Jr ’30 Scholarship
• Joe & Julie Gillespie
• Heep Litterst Judging Scholarship
• Wells Family Scholarship
• Brandon & Rachel’01 Cutrer Scholarship
• COADAC P&L Boleman’68 Family Scholarship
• COADAC Pat & Larry Boleman ’68
• COADAC Reba & Kenneth McGee ’60 Family Scholarship
• William F ‘Bill’ Greer Scholarship
• AA & L Elouise Melton End Sch
• Harold and Evelyn Jammers Scholarship
• Donald A ‘Pudge’ Palmer Scholarship
• Jo & WF Worthington ’54 Scholarship
• John Ben ’50 & Cherie Carrabba Livestock Judging Team Scholarship

**ANSC Student Publications/Presentations (Most Recent Five Years)**

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<th></th>
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<th>2013</th>
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<th>2015</th>
<th>2016</th>
<th>2017</th>
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<td>69</td>
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<td>74</td>
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<td>Abstracts</td>
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<td>85</td>
<td>99</td>
<td>97</td>
<td>125</td>
<td>112</td>
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<tr>
<td>Book Chapters</td>
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<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>-</td>
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<td>Conference Proceedings</td>
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<td>4</td>
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<td>3</td>
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<td>2</td>
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<td>Research/Contract Reports</td>
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<td>7</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>11</td>
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<td>-</td>
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<td>Popular/Industry Articles</td>
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<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
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</table>

Data from ANSC faculty CVs - October 2018
Employment Profile (In Field Within One Year of Graduation; Most Recent 5 years)
Each year, the Texas A&M University Career Center surveys the graduating class to assess their post-graduation plans. The survey is administered at graduation and asks the following questions:

1. Did you complete an internship, cooperative education, study abroad or work abroad experience?
   a. Which best describes your post-graduation plans: Have offer, Pursuing further, education, No offer
2. Employing Organization/Salary
3. Educational Institution/Degree Program

The most recent five year average employment data is reported in Table 6.21. More detailed information is provided on page 118.

Table 6.21  ANSC undergraduate and graduate student employment profile.

<table>
<thead>
<tr>
<th>Animal Science – Undergraduate Students</th>
<th>Have Offer</th>
<th>Salary</th>
<th>Bachelor</th>
<th>$45,520</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Offer</td>
<td>34%</td>
<td>Salary</td>
<td>Bachelor</td>
<td>$45,520</td>
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<td>Further Education</td>
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<td>No Offer</td>
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<td></td>
<td>$45,520</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Animal Science – Graduate Students</th>
<th>Have Offer</th>
<th>Salary</th>
<th>Master</th>
<th>$51,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have Offer</td>
<td>57%</td>
<td>Salary</td>
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<tr>
<td>Further Education</td>
<td>27%</td>
<td></td>
<td>Doctorate</td>
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<tr>
<td>No Offer</td>
<td>16%</td>
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</table>

Data compiled by TAMU Career Service, ANSC Outcomes - September 2018
Texas A&M University
Animal Science
Post-Graduation Outcomes
2013 - 2017

Each year, the Texas A&M University Career Center surveys the graduating class to assess their post-graduation plans. The survey is administered at graduation and asks 4 questions:

1. Did you complete an internship, cooperative education, study abroad or work abroad experience?
2. Which best describes your post-graduation plans:
   a. Have offer
   b. Pursuing further education
   c. No offer
3. Employing Organization/Salary
4. Educational Institution/Degree Program

Animal Science – Undergraduate Students

- **38%** of Animal Science Undergraduate Students completed an internship, cooperative education, study abroad or work abroad experience.

<table>
<thead>
<tr>
<th>Have Offer</th>
<th>34%</th>
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<tr>
<td>Further Education</td>
<td>40%</td>
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<td>No Offer</td>
<td>26%</td>
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</tbody>
</table>

Animal Science – Graduate Students

- **41%** of Animal Science Graduate Students completed an internship, cooperative education, study abroad or work abroad experience.

<table>
<thead>
<tr>
<th>Have Offer</th>
<th>57%</th>
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<tbody>
<tr>
<td>Further Education</td>
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</tr>
<tr>
<td>No Offer</td>
<td>16%</td>
</tr>
</tbody>
</table>

Further Education - Undergraduate (as reported by students on the Career Center’s Graduation Survey)

- Angelo State University
- Arizona State University
- Auburn University
- Baylor College of Dentistry
- Belmont University
- Blinn College - Nursing
- Bowling Green State University
- Duke University
- George Washington University
- Lee College
- Lone Star College
- Massey University
- Middle Tennessee State
- Mississippi State University
- New Mexico State University
- North Dakota State University
- Oklahoma State University
- Parker University
- Primrose School
- Ross University

<table>
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<th>Salary</th>
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<th>$45,520</th>
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<td></td>
</tr>
<tr>
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</table>
Royal School of Veterinary Medicine
Sam Houston State University
Seoul National University
St. George University
St. Matthew’s University
Stephen F. Austin State University
Tarleton State University
Texas A&M Health Science Center
Texas A&M College of Veterinary Medicine
Texas A&M University

Texas A&M University Kingsville
Texas Christian University
Texas Southern University
Texas Tech University
Texas Tech University Health Science Center
University of Arkansas
University of California Davis
University of Houston
University of Incarnate Word
University of Missouri
University of Nebraska

University of North Texas
University of Tennessee
University of Texas Medical Branch
Galveston
University of Texas Rio Grande Valley
University of Texas Southwestern
Victoria College
Washington State University
West Texas A&M University

Employing Organizations – Undergraduate (as reported by students on the Career Center’s Graduation Survey)

AHCS Pelmas Animal Clinic
Alltech
Alpha and Omega Mounted Security Patrol
AQHA
Banfield Pet Hospital
Bank of Brenham
Baylor Scott & White
Beechfork Ranch
Beefmaster Breeders United
Brazos Valley Crop Insurance
Brett Gray Ranch
Brian Martin Show Cattle
Bryan Animal Center
Calliope Stables
Capital Farm Credit
Cargill
Cavender’s Boot City
City of Brenham
Clark Dairy Nutrition
College Hills Animal Hospital
Comanche National Bank
Comanche Ranch
Copperas Cove ISD
County Line Vet Clinic
Creature Comfort Animal Clinic
Crossfit Aggieland
Cuero Vet Clinic
Dave Golden Perfume Houses
Entex
Equine Infectious Diseases Lab
Fairfield Animal Hospital
Family Cattle Ranch
FOCUS
Fulton Quien Sabe Ranch
Gonzales Feed Yard
Heatherton Show Jumpers
HEB
Helena
Hilton Garden Inn
IDEX

Integrated Breeder Services
International Brangus Breeders Association
Iron Lake Ranch
J&J Cattle Company
J.B. Hunt
J.C. Trucking
Jacksonville ISD
JBS USA
JC Fodale
JLK Performance Horses
K & S Trucking
K&M Enterprises
Katelyn Todd Photography
Katy ISD
Keating Auto Group
KEMI Program
Kenton Cattle
Kingdom Animal Hospital
Kunalpin Farms
Labatt Foods
Lazy E Ranch
Look Sharp Farm
Lovann Care Veterinary Hospital
M3 Whitetail Ranch
Martin Preferred Foods
Mason Pro Rodeo Productions
McAllen ISD
MD Anderson
MHC Kenworth
Monsanto
Montana Wildlife Federation
Moreno Construction Company
Morning Glory Ranch
Mustang Heritage Foundation
Nolan Ryan Beef
Northside Animal Hospital
O’Reilly Auto
Patriot Paws Service Dogs
Peterson Law Group
Pick a Fit Foods
Pilgrim’s Pride
Pioneer Steel & Pipe
Pioneer Veterinary Hospital
Pitchford Insurance
Pony Up Technology
Power Paws
Producer’s Cooperative
Pumpco
Purina
Real Estate BCS
Republic National Brewing
Reynolds & Reynolds
Royal Vista Southwest, LLC
Rush Enterprises
San Antonio Police Department
Schiller Ranch
Schley Farms
Senate Select Committee on Ethics
Serna Insurance
Sesaco
Sewell Automotive
Sexing Technologies
Sir Speedy Printing
Sky Ranch
Smith & Associates
South Plains College
St. Joseph Regional Hospital
Stand Alone Feeds
Surelean Foods
Swearingen Feed
Texas A&M College of Veterinary Medicine
Texas A&M Large Animal Hospital
Texas A&M University
Texas A&M University Petroleum Engineering Department
Texas AgriLife Extension
Texas Beef Council
Texas Parks & Wildlife
Texas Veterinary Medical Diagnostics Laboratory
Texas Wheat Producers       Tyson Foods         Wired Networks
The Retreat at Balcones Springs Union Pacific Zachry Construction
Thomas Petroleum           US Air Force       Zamora Agency
Three Brothers Stables     US Army             
Three Chimneys Farm         US Marines          
Tonkaway Ranch, GICCK Cattle Company US Navy  
Topeka Zoo                   USDA                  
Trans Ova Genetics          Van Stavern Small Animal Hospital 
Triple JJ Ranch              Waller Equine Hospital
Triumph Downhole Services   Walt Disney World

**Employing Organizations - Graduate (as reported by students on the Career Center’s Graduation Survey)**

American Meat Science Association Omega Protein Texas A&M University - Kingsville
Anforme Economics Sadlers Smokehouse Tyson Foods
Angelo State University Safe Foods Corp University of California, San Diego
Cyagen Samuel Roberts Noble Foundation Western Illinois University
Kansas State University Sexing Technologies Westway Feed Products
Lindner Feed & Milling Co. INC Texas A&M University Winster Farm

**Further Education – Graduate (as reported by students on the Career Center’s Graduation Survey)**

Colorado State University
Texas A&M University
University of California, San Diego
Analysis: Degree Programs Contribution to Land Grant System as Described in the Strategic Plan (Areas of Excellence)

Our recently revised strategic plan includes the following approved five areas of excellence:

- Cattle adapted to tropical and subtropical environments
- Pregnancy and developmental programming
- Safety, quality and nutrition of food products
- Student and stakeholder engagement in animal science
- Quantifiable animal performance

Our undergraduate program offers a production industry and science option. These two tracks prepare our students for employment in the animal agriculture industry or entry into vet school or graduate school. Our new undergraduate curriculum has provided a more structured program that enhances hands-on experience, industry and international experiences. The sequence of course offerings has been implemented to ensure that students take required courses in a specific order that prepares them to take our animal science capstone course where they can apply the knowledge and competencies learned to solve domestic and international animal agriculture problems and effectively communicate these solutions to inform policy. The new baccalaureate degree program provides technical knowledge and skills in all of the approved areas of excellence. This revision has resulted in the development of a comprehensive, multidisciplinary, competency-based curriculum as the cornerstone of the Texas A&M University Department of Animal Science goal to develop and educate future cohorts of trained animal scientists who are well equipped to address national and international challenges facing animal agriculture.

Our new undergraduate curriculum seeks to address the complexity of food animal production. Our curriculum has embedded student learning outcomes beyond agricultural production knowledge to include biotechnology, animal welfare, environmental pollution, international trade, hunger and poverty, social justice, and other issues. Critical-thinking skills are addressed in our curriculum to ask questions and challenge them to learn how the scientific method contributes to solving complex and global issues. For this to occur, students must use their knowledge and skills to address real-world situations, which is accomplished by establishing our new ‘capstone’ course. Additionally, providing unique high impact learning experiences for our students (e.g., undergraduate student research, enhanced internship opportunities, and other experiential learning opportunities) is an effective way to identify and develop future animal scientists. Even if students do not wish to seek a graduate degree, this experience is valuable to develop their science literacy.

Our graduate program offers degrees in animal breeding, animal science, physiology and reproduction and equine industry management. Certificate programs include meat science and food safety. The majority of these degree programs are focused on the conduct of research to address animal agriculture problems not only in our five areas of excellence but other areas as well. Our master of agriculture and equine management programs provide students technical knowledge and internship opportunities to prepare them to assume industry positions and assume future leadership roles. Students in our program also have the opportunity to teach undergraduate laboratories and/or assist in conducting extension activities providing invaluable experience in communicating animal science knowledge to the general public. The department is currently reassessing the graduate program requirements and curriculum to improve our graduate students technical knowledge, research competencies and communication skills. Our graduate program provides technical knowledge and skills in all of the approved areas of excellence.

Analysis: Enrollment, Retention, Time to Degree and Demographics

Strengths:

Freshmen Undergraduate Enrollment: As the five-year data indicate, we continue to experience growth in freshman enrollment. During the academic years described, freshman applications have been either similar to or higher than numbers recorded over the past decade, suggesting that our existing recruiting platform has been successful in generating interest among potential undergraduate students. Our existing strategy for undergraduate recruiting relies heavily on animal science based Career Development Events (CDE) hosted by the department faculty, presence at youth livestock shows, and at various conventions (i.e., State FFA Convention. Our faculty and staff are highly engaged in representing our undergraduate program in an effort to recruit new students. Our department advisors
participate in numerous new student conferences throughout the year to aid students and their families in the admissions process and transition into our major.

**Graduate Enrollment:** Overall student enrollment has increased annually dating back to 2013. Graduate enrollment has been associated with the most sizable growth, particularly in Ph.D. students majoring in animal science. This observation is significant, given the focus on low producing Ph.D. programs by the Texas Higher Education Coordinating Board and the Texas A&M University Provost's office. Importantly, current Ph.D. enrollment and projected degrees awarded over the next several academic years will allow the Department to avoid designation as a low producing degree program.

**Enrollment Relative to College:** Student enrollment for undergraduate and graduate programs places us as one of the largest in the College of Agriculture and Life Sciences.

**Retention:** Retention rates for first year ANSC undergraduate majors, first time in college, were consistently higher than the college average. Undergraduate probation rates during the past five years averaged less than 3%. First year masters student retention and third year cohort graduation rates are equal to or higher than the college averages. The same trends exist for first-year doctoral student retention and third and fifth-year graduation rates compared to the college.

**Time to Degree:** Time to degree averages for the baccalaureate degree were slightly over 4 years, while the Equine Industry Management Program masters program averaged slightly less than 2 years.

**Degrees Awarded:** An average of 200+ baccalaureate degrees are awarded each year. An average of 7 doctoral degrees per year have been awarded during most recent five years. Degree granting programs in Texas are monitored by the Texas Higher Education Coordinating Board. Doctoral programs that do not award at least 10 degrees over a five-year period are considered low producing programs. Programs identified as “low producing” for three consecutive years are forced to inactivate.

**Placement upon graduation:** TAMU Career Services indicate that almost 75% of our undergraduate students have a job offer or an offer for further education. Average salary reported is $45,520. For graduate students, almost 85% have a job offer or an offer for further education. Average salary reported is $51,000 (Masters) and $71,125 (Doctoral).

**Weaknesses and Opportunities:**

**Freshmen Undergraduate Enrollment:** Although our enrollment numbers are strong, the number of minority students/international students could be improved. Increased department focus on working to improve our presence at events where we can recruit more minority students to our program would be beneficial. The department’s efforts in creating study abroad courses with linkages to other country’s agricultural institutions plus maintaining current (i.e., Ireland, Brazil, Honduras) and new international exchange programs and hosting international students study abroad programs will aid the department in increasing the number of minority/international students entering our program.

**Graduate Enrollment:** We have a large number of students in our graduate programs. However, we have seen an increase in the number of Master of Agriculture non-thesis students during the most recent five years. As stated previously priority is placed on number of Ph.D. degrees awarded during a five-year period. The department should look at continuing for opportunities to increase the number of Ph.D. students and focus on growing the M.S. and M.Ag. programs in areas where an advanced degree is preferred by industry.

**Time to Degree:** Although our time to degree for undergraduate students is close to 4 years, there are opportunities to improve the time to degree for our graduate programs. Current efforts by the ANSC Graduate Program Committee are reviewing degree requirements and undergoing a curriculum review and future revision of our graduate programs, to include the development of online graduate courses to meet the needs of our students conducting research or internships off campus. These results are anticipated to help reduce the time to degree which should increase the number of degrees award, with a focus on Ph.D. degrees.
Placement upon graduation: Although the data presented came from Texas A&M Career Center, the department should improve its ability to track student placement after graduation. There is no formal system in place. However, the department is working with the College and career Center to determine how we can better capture this data. A key component of our new undergraduate curriculum (Implementation in Fall 2018) is the requirement for all students to complete an animal science experience. One of these experiences are student internships. The department has recently focused its efforts on creating a more robust internship program by hiring an instructional assistant professor to lead these efforts. Students enrolled in the equine science certificate program are required to conduct an internship while the meat science certificate internship requirement is optional. Increasing the number of students conducting an internship should improve their chances of gaining employment after graduation. This, in addition to an enhanced data collection system to track student placement after graduation will provide a clearer picture of how well our majors are entering the workforce or continuing their education.
ASHLEY ARNOLD

Research Assistant Professor
Department of Animal Science
Texas A&M AgriLife Research
2471 TAMU, 120 Rosenthal Center
Texas A&M University
College Station, TX 77843-2471
(979) 862-3643
a.arnold@tamu.edu

Education

Ph.D. (Animal Science), Texas A&M University
Graduate Certificate in Food Safety
May 11, 2013

M.S. (Animal Science), Texas A&M University
Graduate Certificate in Meat Science
May 16, 2009

B.S. (Animal Science), Cum Laude, Texas A&M University
Undergraduate Certificate in Meat Science
Dec. 16, 2006

Professional and Academic Appointments

Research Assistant Professor
Department of Animal Science, Texas A&M University, College Station
September 1, 2013 - Present

Laboratory Technician II
Department of Animal Science, Texas A&M University, College Station
October 1, 2008 – August 31, 2013

Graduate Research and Teaching Assistant
Department of Animal Science, Texas A&M University, College Station
January 1, 2007 – May 11, 2013

Undergraduate Research Assistant
Department of Animal Science, Texas A&M University, College Station
May 16, 2006 – December 31, 2006

Research Interests and Grant Support
Research areas include the pre-harvest surveillance of Salmonella in fed-cattle operations, post-harvest evaluation of Salmonella in the lymph nodes of cattle, alternative lethality and stabilization methods for processed meat products, and the validation of various post-harvest intervention practices. Associated with over $2.15M in external grant funds and has published twenty-five peer reviewed journal articles during her career.

Selected Publications (Most recent 3 years)
* denotes graduate student; † denotes corresponding author


subjected to blade tenderization, postmortem aging or freezing treatments. *Meat Muscle Biol.* Submitted.


**Contributions to Scientific Societies and Associations**


2. American Meat Science Association
   a. C. Boyd Ramsey RMC Scholarship Award Selection Committee March 2018 - Present
   b. Scientific Information Committee June 2015 - Present
   c. RMC Program Planning Committee (Kansas City, MO) June 2017 - June 2018
   d. RMC Program Planning Committee (College Station, TX) June 2016 - June 2017
   e. RMC Program Planning Committee (San Angelo, TX) June 2015 - June 2016

3. International Association for Food Protection
   a. Meat and Poultry Professional Development Group 2013 - Present
   b. Pre-Harvest Food Safety Professional Development Group 2013 - Present

**Scientific Review**

*Ad hoc* reviewer for:
- Meat and Muscle Biology
- Meat Science
- Great River Learning
Jason P. Banta

Associate Professor and Extension Beef Cattle Specialist
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
PO Box 38, Overton, TX 75684
903-834-6191
jpban@tamu.edu

EDUCATION
Oklahoma State University – Stillwater; 2005 – Ph.D. Animal Nutrition
West Texas A&M University – Canyon; 2002 – M.S. Animal Science
Texas A&M University – College Station; 1999 – B.S. Animal Science

EXPERIENCE
A) Current Employer:
Associate Professor & Extension Beef Cattle Specialist – 100% Extension
September 2013 – Present

Assistant Professor & Extension Beef Cattle Specialist – 100% Extension
August 2005 – August 2013

B) Past Experience:
August 2002 – July 2005
Graduate Teaching and Research Assistant
Department of Animal Science, Oklahoma State University; Stillwater, OK

July 1999 – July 2002
Extension Assistant
Texas Cooperative Extension, Texas A&M University System; Amarillo, TX

SELECTED PUBLICATIONS


**SUMMARY OF COURSES TAUGHT**

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<tr>
<th>Semester</th>
<th>Course</th>
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*Texas A&M University, College of Veterinary Medicine and Biomedical Sciences*
Fuller W. Bazer

Regents Fellow
Distinguished University Professor
Presidential Impact Fellow
O.D. Butler Chair
Department of Animal Science
College Station, TX  77843-2471
979-862-2659
fbazer@cvm.tamu.edu

Joint Appointments:  Departments of Veterinary Anatomy and Public Health and Veterinary Physiology and Pharmacology

Previous Employment: University of Florida (1968-1992); Vice President for Research and Interim Dean of the Graduate School of Biomedical Sciences, The Texas A&M University System Health Science Center (TAMUSHSC), 1999-2000; Director, Institute of Biosciences and Technology, TAMUSHSC, Texas Medical Center, Houston, 1994-2001; Associate Vice Chancellor and Executive Associate Dean, College of Agriculture and Life Sciences, and Associate Director, Texas Agricultural Experiment Station, 2001-2004; Associate Vice President for Research, 2004-2008; Interim Head, Department of Veterinary Pathobiology, 2009-2010, Texas A&M University.

Training:  B.S., Biology, Centenary College of Louisiana, Shreveport, 1960; M.S., Animal Science, Louisiana State University, Baton Rouge,1963; Ph.D. Animal Science (Reproductive Biology), North Carolina State University, Raleigh, 1969.

Research Interests: Reproductive biology with emphasis on uterine biology and pregnancy. Mechanisms of action of pregnancy recognition signals from the conceptus to the uterus, including interferon tau and estrogen from ruminant and pig conceptuses, respectively, are studied at the molecular and cellular levels. The roles of uterine secretions as transport proteins, regulatory molecules, growth factors and enzymes and endocrine regulation of their secretion is a major research interest. The endocrinology of pregnancy, especially the roles of lactogenic and growth hormones in fetal-placental development and uterine functions are being studied. The therapeutic value of conceptus interferons and uterine-derived hematopoietic growth factors are areas of research with both pigs and sheep as models for human disease.

Honors: American Society of Animal Science Physiology and Endocrinology Award (1980); L.E. Casida Award for Graduate Education (1995); Morrison Award (2014);University of Florida Gamma Sigma Delta Research and Teaching Awards (1976 and 1982); University of Florida Sigma Xi Research Award (1976); University of Florida Alpha Zeta "Professor of the Year" (1977-1978); Florida Blue Key Distinguished Faculty Award (1985); Fellow, American Association for the Advancement of Science (1988-present); Goding Lecturer, Australian Society for Reproductive Biology and Fertility Society of Australia (1988); Society for the Study of Reproduction Research Award (1990), Distinguished Service Award (2000), Carl Hartman Award (2004) and Trainee Mentor Award (2009); Sir John Hammond Lecturer, Society for the Study of Fertility and Societe Francaise pour le Etude de la Fertilité (1991); Biotechnology 94 Award (1994); Gamma Sigma Delta International Distinguished Achievement Award in Agriculture (1996); Donald H. Barron Lecturer, University of Florida (1996; 2015); Texas A&M University System Regents Fellow (1998); Texas A&M University Association of Former Students Distinguished Achievement Award in Research (2000); Alexander von Humboldt Research Award in Agriculture (2000); Vice Chancellor for Agriculture Award in Excellence for Research (2000); C.E. Byrd High School Hall of Fame, Shreveport, LA (2002); 2002-2003 Wolf Prize in Agriculture; Honorary Member, American College of Theriogenologists (2003); Doctor of Science, honoris causa, University of Guelph (2004); Texas A&M University Distinguished Professor (2004); Vice Chancellor for Agriculture Award for Team Research in Uterine Biology and Pregnancy (2006); Society for Research and Fertility
Distinguished Research Award (2007); E. T. York Lecturer, University of Florida (2007); Doctor of Science, *honoris causa*, University of Florida (2009); Pioneer Award, International Society for Ruminant Reproduction (2010); Distinguished Alumnus Award, North Carolina State University (2010); Vice Chancellor’s Award for Excellence in Diversity (2011); Sydney Asdell Lecturer, Cornell University (2015); Billie A. Field Memorial Lectureship, University of Illinois (2015); Centenary College of Louisiana Alumni Hall of Fame Inductee, Shreveport, Louisiana (2016); Colegio Brasileiro de Reproducao Animal Award for Outstanding Contributions to Reproductive Biology, November 2016; Texas A&M University Presidential Impact Fellow (2017)


**Current Funding for Research as Principle Investigator or Co-Principal Investigator:**

1. NIH 1R01HD080658-01A1 National Institutes of Health, Satterfield MC (PI), Wu G (Co-I), Bazer F (Co-I). Understanding placental adaptation to maternal malnutrition. 9/1/15-6/30/20; $1,510,299.
2. USDA, AFRI 2016-67015-24958, Arginine and secreted phosphoprotein 1 mediate cell signaling to enhance conceptus development and survival. Bazer FW (PI), Wu G (Co-PI), Johnson GA (Co-PI).
12/01/15-11/30/19; $460,000.
3. USDA, AFRI 2015-06857; Paracrine and autocrine signaling between the conceptus and uterus in pigs. Johnson GA (PI), Bazer FW (Co-I). 12/01/15-11/30/19; $460,000
4. Texas A&M University, Office of the Provost, Tier One Proposal: Collaborative Learning Initiatives in Maternal, Perinatal, and Infant Health Research. Ramadoss J (PI), Bazer FW (Co-I), Hinrichs K (Co-I), Suva LJ (Co-I), Herman J (Co-I). $288,000; 09/01/2016-08/31/2019.
5. USDA CSRES AFRI Proposal 2017-05446; FW Bazer (PI), G Johnson (Co-I), G Wu (Co-I); 03/01/18 – 02/28/22; $500,000; Roles of fructose and glucose in growth and development of ovine and porcine conceptuses.
6. USDA / AFRI Grant # 2015-67015-23276 Wu G, PI; Bazer FW, Co-PI; Johnson GA, Co-PI; Regulation of water and ion transport by arginine in porcine conceptuses. $452,000 04/01/2015 - 03/31/2019

Publications in refereed scientific journals (2017) from total of 610:

2017

Chair/Co-Chair of Graduate Student Advisory Committees
Katherine Halloran - [with Dr. Guoao Wu] – program in progress
Emily Townsend - [with Dr. Guoao Wu] – program in progress
Colleen Lambo – [with Dr. Shannon Washburn] – program in progress

Co-Chair of Graduate Student Advisory Committee [Chair of Committee]
Brian McClendon - [with Dr. Greg Johnson] – program in progress
Cassandra Herring - [with Dr. Guoao Wu] – program in progress
Avery Graham [with Dr. Greg Johnson] – program in progress
Brian McClendon [with Dr. Greg Johnson] - program in progress

c. Member of Graduate Advisory Committee

Master of Science: Elizabeth MacConnell

Ph.D.: Selene Howe (VTPB) – program in progress

Teaching: I lead the team that is very effective in teaching ANSC 630 (Reproductive Biology I and ANSC 631 (Reproductive Biology II) in the Fall 2017 and Spring 2018 semesters, and I will teach ANSC 333 (honors section) in Fall 2018.

Undergraduate Research Experience: Kayla Leggett, Robyn Moses, Samantha Le, Fayth Kumro

Visiting Scholars: Dr. Yasser Lenis Sanin (Colombia, South America) and Mohammed Elmetwally (Egypt)
Rodolfo C. Cardoso

Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979-458-8463
r.cardoso@tamu.edu

EDUCATION
D.V.M. Sao Paulo State University, Botucatu, Brazil, 2005
M.S. Sao Paulo State University, Botucatu, Brazil, 2009, Animal Reproduction
Ph.D. Texas A&M University, College Station, TX, 2014, Physiology of Reproduction
Postdoctoral Fellowship, University of Michigan, Ann Arbor, MI, 2016, Reproductive Endocrinology

POSITIONS AND EMPLOYMENT
2006-2007 Veterinary Theriogenology Resident, Sao Paulo State University, Botucatu, Brazil
2007-2009 Graduate Research Assistant, Sao Paulo State University, Botucatu, Brazil
2010-2014 Graduate Teaching/Research Assistant, Texas A&M University, College Station, TX
2014-2016 Postdoctoral Research Fellow, University of Michigan, Ann Arbor, MI
2016- Assistant Professor, Texas A&M University, College Station, TX

AWARDS AND FELLOWSHIPS
2012-2014 Larry Ewing Trainee Travel Award, Society for the Study of Reproduction (SSR)
2012, 2014 AgResearch Merit Award, U. S. Department of Agriculture (USDA) - SSR
2013 Graduate Student Travel Award, TAMU Association of Former Students
2014 Third Place, Trainee Research Platform Competition, SSR
2014 Tom Slick Graduate Research Fellowship - Texas A&M University
2014 Dr. A.M. “Tony” Sorensen Jr. Achievement Award, Texas A&M University
2014 International Gamma Sigma Delta Agricultural Honor Society
2015-2016 Postdoctoral Fellowship, The Lalor Foundation
2016 Early Career Forum Travel Award, Endocrine Society

SERVICE AND MEMBERSHIPS
2014, 2017 Judge, Student Research Week, Texas A&M University
2017 - 2018 Judge, Agricultural Science Fair Contest, Houston Livestock Show and Rodeo
2017 Judge, Agricultural & Natural Resources Policy (ANRP) Internship Program
2016 Poster Judge, Texas A&M Postdoctoral Research Symposium
2012 - 2013 Executive Member (Graduate Student Representative), Interdisciplinary Faculty of Reproductive Biology, Texas A&M University
2014 - Present Member, Endocrine Society
2013 - Present Member, American Society of Animal Science
2010 - Present Member, Society for the Study of Reproduction
2016 - Present Faculty Member (vice-chair), Interdisciplinary Faculty of Reproductive Biology, Texas A&M University
INVITED PRESENTATIONS (last 4 years)
1. 10th International Ruminant Reproduction Symposium, Foz do Iguaçu, Brazil (Accepted)
2. 2018 Applied Reproductive Strategies in Beef Cattle Symposium, Ruidoso, NM (Accepted)
3. 2018 Beef Cattle Short Course, Texas A&M University, College Station, TX (Accepted)
4. Developmental Programming of the Reproductive Neuroendocrine System. Interdisciplinary Faculty of Reproductive Biology Seminar, Texas A&M University, 2016
5. Role of Androgens and Insulin in Developmental Programming of LH hypersecretion in Prenatal Testosterone-Treated Sheep. Reproductive Sciences Program Seminar, University of Michigan, 2015
6. Nutritional and Metabolic Programming of Puberty in Beef Heifers. Interdisciplinary Faculty of Reproductive Biology Annual Retreat, Texas A&M University, 2014

ONGOING RESEARCH SUPPORT
USDA-AFRI 009982 Cardoso/Williams (PI) 03/2018-02/2022
Impact of Perinatal Nutrition on Reproductive Neuroendocrine Phenotype in Sexually Mature Heifers
Role: Principal Investigator/Project Director

Texas A&M University - T3 Program Cardoso (PI) 03/2018-02/2020
Developmental Programming of Health and Disease
Role: Principal Investigator/Project Director

USDA - AFRI 003958 Williams/Amstalden (PI) 09/2013 – 08/2018
Prenatal control of nutritionally-accelerated puberty in heifers
Role: Co-Investigator

COMPLETED RESEARCH SUPPORT
The Lalor Foundation Postdoctoral Fellowship Cardoso (PI) 06/2015 – 05/2016
Pathophysiological role of androgens and insulin in developmental programming of LH hypersecretion in prenatal testosterone-treated females
Role: Principal Investigator (Postdoctoral Fellow)

Tom Slick Graduate Research Fellowship Cardoso (PI) 01/2014 – 12/2014
(Texas A&M University)
The nutritional and metabolic control of puberty in heifers
Role: Principal Investigator (Predoctoral Fellow)

Teaching Support
Department of Animal Science, Mini-Grants Cardoso (PI) 10-2017 – 8/2019
(Texas A&M University)
Bovine Theriogenology Simulator to Enhance Learning Outcomes
Role: Principal Investigator

Department of Animal Science, Mini-Grants Dunlap (PI) 10-2017 – 8/2019
(Texas A&M University)
Use of Portable Veterinary Ultrasound to Facilitate Student Completion of Learning Outcomes in the Revised Animal Science Curriculum
Role: Co-Investigator
PUBLICATIONS

Selected Peer-Reviewed Publications (last 4 years)


Recent Abstracts (last 3 years)
BRUCE CARPENTER

Professor and Extension Livestock Specialist
Department of Animal Science
Texas A&M AgriLife Extension Service
1618 Airport Drive
Fort Stockton, TX 79735
432-336-8585
Bruce.Carpenter@ag.tamu.edu

EDUCATION
B.S., Animal Science and Range Science, New Mexico State University, 1983
M.S., Physiology of Reproduction, Texas A&M University, 1990
Ph.D., Physiology of Reproduction, Texas A&M University, 1993

EXPERIENCE
Dr. Carpenter's Extension activities include responsibilities across several Extension Districts in West and Southwest Texas, as well as other Texas counties, where he interacts with County Extension Agents, livestock producers, and allied industry to conduct educational programs and applied research targeting range livestock (cattle, sheep, goats), horses, and ranch and natural resource management and planning. At the regional and state levels, he is active in Integrated Toxic Plant Management, the Southwest Beef Symposium, the Beef Cattle Short Course, Grassfed Beef Conference, and cattle pregnancy determination and artificial insemination clinics. He is a faculty member in the newly created International Beef Academy at Texas A&M where students learn about emerging technologies to enhance beef production and quality across the globe. Certification follows completion of a 30 credit hour course in an on-line and on-ranch format.

Awards
• Specialist of the Year in Texas Agriculture, Texas County Agricultural Extension Agents Association, 2017
• Extension Super Service Award for Excellence, Team Category, BQA, Texas A&M AgriLife 2016

Service
• College of Agriculture and Life Sciences Promotion and Tenure Committee, 2017-2018

Examples of Statewide / Interstate Extension Programming
Annual Southwest Beef Symposium. This is a two-day educational forum and trade show tailored for beef producers in West Texas and New Mexico. It is coordinated by Animal Science Extension Specialists in West Texas (Drs. Carpenter and McCollum) and New Mexico; with locations alternating each year. Dr. Carpenter has program responsibilities for outcome reporting, planning, advertising, registration, trade show, and program evaluation. Since 2012, seven symposiums have received a total of $98,763 in gross receipts, with $58,098 coming from sponsors and exhibitors. Reported average herd size of attendees is 550 head (cow-calf).

Annual United States Beef Academy. The USBA is an educational event for college-age young men and women who are motivated to learn about, and who seek careers in, the beef industry. It is a five day, intensive educational opportunity focusing on current methods and technology in beef production. It is a collaborative Extension effort between New Mexico State, Texas A&M, and Colorado State Universities. In 2017, the roster included students from Indiana, Wisconsin, Oregon, California, Texas, New Mexico,
Florida, and Chihuahua, Mexico. There were two veterinary students, seven graduate students and six undergraduate students.

**Cattle Reproductive Management Schools.** Extension Specialists partner with industry affiliates to conduct intensive three to four-day schools, which include both classroom instruction and hands-on training with live cattle. Topics Dr. Carpenter teaches include AI, pregnancy diagnosis, anatomy and physiology of reproduction, cow and heifer management, nutrition, sire selection, genetic management, and estrous cycle management. Since 2012, 1,225 students representing 104,325 cows and 23,577 contact hours have been taught.

**Annual Beef Cattle Short Course.** Yearly attendance averages around 1500 people. Dr. Carpenter coordinates the “Beef Reproduction College” (attendance of 300), and he also assists in coordinating speakers, equipment and animals for the live animal handling sessions which he and Dr. Ron Gill conduct (average attendance of 150).

**Annual Grassfed Beef Conference.** Since 2012, Dr. Carpenter has cooperated with other faculty to plan and deliver this two-day program.

**2018 Applied Reproductive Strategies in Beef Cattle Symposium.** Assisted in planning and presented information at the meeting.

**PUBLICATIONS**

**Refereed Papers and Abstracts.**


**Popular Press Articles.** (Circulation based on 2010 data)


FIELD TRIALS AND APPLIED RESEARCH

Use of Estrous Synchronization, with Prostaglandin, and Early Pregnancy Detection by Blood Test, to Identify and Select Replacement Heifers: An Alternative - or Direct, Approach. These trials are in progress (3 ranches, n=312 head) and will be complete in late 2018. Based on other research, we anticipate that yearling heifers that become pregnant on their first estrus / bull exposure will likely have better reproductive performance as 2-year-olds (and probably throughout their lives) compared to those that became pregnant later in their first breeding season. Thus, the methods discussed here might be a way to identify and select directly for puberty and fertility - as measured by pregnancy within the first 12 days of the breeding season. In-kind support totaled $1,700.

Anti-Mullerian Hormone (AMH): potential association with fertility in heifers and ewes. Dr. Carpenter collaborated with Applied Biosciences Laboratory, College Station, AgriLife Research in San Angelo (Drs. John Walker and Dan Waldron) and with Angelo State University (Dr. Mike Salisbury and M.S. candidate Joshua Smart) to establish base line research for serum assay of Anti-Mullerian Hormone in the bovine and ovine. This project also investigated the possible role of AMH in puberty and fertility in heifers and puberty, fertility and fecundity in ewes. One thesis M.S. student trained. Dr. Carpenter serves as adjunct faculty at ASU. In-kind donations totaled $10,000 from Applied Biosciences Laboratory.
Rearing Environment and Prolificacy of Free-Ranging Yearling Bulls and Studies on Bull Activities and Behaviors During a Breeding Season Using a Global Positioning System. Dr. Carpenter worked with Dr. David Forrest and Bryan Rogers (PhD candidate, PREP, TAMU) to examine the prolificacy of native vs. non-native yearling bulls under extensive rangeland breeding conditions. Prolificacy (number of calves sired) was determined by paternal DNA typing. A second objective was to study travel behaviors among bulls using GPS (global positioning satellite tracking) and finally, to determine if certain travel behaviors could be associated with fertility. In-kind donations totaled $10,400.
Gordon Carstens

Professor
Department of Animal Science
Texas A&M University
2471 TAMU
College Station, TX 77843-2471
979.845.5081
g-carstens@tamu.edu

Education:
Ph.D. (Animal Nutrition), Colorado State University, 1988
M.S. (Animal Science), Colorado State University, 1984
B.S. (Animal Science), Iowa State University, 1979

Positions and Employment:
2013 to present: Professor, Animal Science, Texas A&M University
1996 to 2013: Associate Professor, Animal Science, Texas A&M University
1991 to 1996: Assistant Professor, Animal Science, Texas A&M University
1988 to 1991: Lecturer, Animal Science, Texas A&M University

Professional Memberships and Honors:
American Society of Animal Science
American Society for Nutritional Sciences
Plains Nutrition Council
American Registry of Professional Animal Scientists
Outstanding Teacher, Gamma Sigma Delta, COALS
USDA Project on Energetic Efficiency of Beef Cattle (Chair, 2010)

Mentoring Summary (2008-2018):

<table>
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<th>Category</th>
<th>Number</th>
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<tr>
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<tr>
<td>Postdoctoral Fellows</td>
<td>3</td>
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<tr>
<td>Visiting Scientists and Graduate Students</td>
<td>7</td>
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<tr>
<td>Faculty Advisor, BUILD (&gt; 2013)</td>
<td>120-150</td>
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Teaching Summary (2008-2018):

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<thead>
<tr>
<th>Course</th>
<th>Level</th>
<th>Students per year</th>
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<tbody>
<tr>
<td>Animal Feeds and Feeding</td>
<td>Undergraduate</td>
<td>260-320</td>
</tr>
<tr>
<td>Directed Studies</td>
<td>Undergraduate</td>
<td>5-6</td>
</tr>
<tr>
<td>Precision Diet Formulation</td>
<td>Graduate</td>
<td>10-14</td>
</tr>
<tr>
<td>Energy Metabolism (&gt; 2014)</td>
<td>Graduate</td>
<td>14-18</td>
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<table>
<thead>
<tr>
<th>Publication Type</th>
<th>Number</th>
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<tbody>
<tr>
<td>Peer-Reviewed Publications</td>
<td>34</td>
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<tr>
<td>Book Chapters</td>
<td>3</td>
</tr>
<tr>
<td>Abstracts at Scientific Meetings</td>
<td>84</td>
</tr>
<tr>
<td>Conference Proceedings</td>
<td>23</td>
</tr>
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</table>

TEACHING EXPERIENCE:

Teaching Responsibilities: The primary teaching responsibility includes ANSC 318—Animal Feeds and Feeding, which is a required course for the Animal Science degree program. Lectures are designed to address the chemical composition and nutritional characteristics of common feedstuffs, digestive systems and nutritional requirements of livestock species, and formulation strategies to design rations and supplements for feeding programs. Laboratories are designed to provide hands-on learning opportunities for students including feedstuffs identification, chemical analysis of forage feedstuffs, ration and supplement formulation exercises including least-cost diet formulation and field trips. The course focuses on the need to provide scientifically-based feeding programs to meet animal requirements that support livestock production systems in an economical and environmentally sustainable manner.

The graduate teaching responsibility includes ANSC 602—Bioenergetics of Metabolism and Growth and ANSC 623—Precision Diet Formulation. The Bioenergetics of Metabolism and Growth course presents a comprehensive study of energy metabolism related to nutrition, growth and development and production in animals, with the objective to understand fundamental classic and current concepts of and procedures for quantifying energetics relating to cellular, metabolic and whole-animal function. The Precision Diet Formulation course presents theoretical and applied principles associated with precision feeding and diet formulation to match the requirement and supply of energy and other nutrients by animals while mitigating environmental pollution. This course covers optimization using least-cost formulation, and nutrient management of non-ruminants (poultry, swine, horse, and fish) and ruminant animals (beef, dairy and small ruminants).

RESEARCH EXPERIENCE:

Research Responsibilities: The incumbent’s research program is basic and translational in nature, and has recently focused on the discovery of biological mechanisms associated with efficient utilization of feed resources in beef cattle. The central hypothesis for the research is that a large proportion of between-animal variance in feed intake of growing and lactating beef cattle is unexplained by variation related to BW and level of production, which can be quantified as residual feed intake. Studies utilizing cattle with divergent phenotypes for RFI are used to systematically explore physiologic and metabolic processes associated with feed efficiency. Additional objectives include examination of relationships between RFI and carcass-quality traits (e.g., tenderness, marbling) and reproductive efficiency in cattle, discovery of physiological indicator traits for RFI, and examination of associations between postweaning RFI and the efficiency of cow-calf production systems. Concurrently, the incumbent’s program is focused on translational research to develop innovative strategies to facilitate industry adoption of technologies to improve feed efficiency in beef cattle. The goal of the research program is to develop technologies that will improve the global competitive position of the U.S. beef cattle industry in an environmentally sustainable manner.
Journal Articles (Selected publications since 2008):


Alejandro Castillo

Associate Professor
Department of Animal Science
Texas A&M University
2471 TAMU Kleberg Center Room 314A,
College Station, TX 77843-2471
979.845.3565
a-castillo@tamu.edu

Education

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
<th>Major</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Guadalajara, (Mexico)</td>
<td>Licentiate (B. Sc.)</td>
<td>Químico Farmacobiólogo (Biology [maj.], Chemistry and Pharmacy [min])</td>
<td>May 1978</td>
</tr>
<tr>
<td>University of Guadalajara,</td>
<td>Specialty (MA equivalent)</td>
<td>Sanitary Microbiology</td>
<td>September 1979</td>
</tr>
<tr>
<td>University of Guadalajara,</td>
<td>Master of Science</td>
<td>Food Microbiology and Hygiene</td>
<td>June 1992</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>Doctor of Philosophy</td>
<td>Food Science and Technology</td>
<td>May 1998</td>
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Experience

<table>
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<tr>
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<th>Position</th>
<th>Brief Description</th>
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<tr>
<td>04/2002 to present:</td>
<td>Associate Professor</td>
<td>Professor of Food Microbiology at Animal Science Department. 60% research, 40% teaching</td>
</tr>
<tr>
<td>05/2010 to 2012:</td>
<td>Chair</td>
<td>Chair of Intercollegiate Faculty of Food Science and Technology until its dissolution in 2012</td>
</tr>
<tr>
<td>2000 to 2002:</td>
<td>Adjunct Assistant Professor</td>
<td>Animal Science Department, TAMU</td>
</tr>
<tr>
<td>2000 to 2002:</td>
<td>Professor C</td>
<td>(Highest rank), Professor of Food Safety. Department of Biology and Pharmacy, University of Guadalajara (Mexico)</td>
</tr>
<tr>
<td>1998 to 1999:</td>
<td>Post-Doctoral Research Associate,</td>
<td>Animal Science Department, Texas A&amp;M University</td>
</tr>
<tr>
<td>1996 to 1998:</td>
<td>Research/Teaching Assistant</td>
<td>Animal Science Department, Texas A&amp;M University</td>
</tr>
<tr>
<td>1990 to 1992:</td>
<td>Associate Professor</td>
<td>Food Microbiology and Hygiene. School (equivalent to a department) of Chemical Sciences, University of Guadalajara</td>
</tr>
<tr>
<td>1992 to 1999:</td>
<td>Professor B</td>
<td>Food Microbiology and Hygiene With leave of absence for Ph.D. studies at Texas A&amp;M University from 1994-1998), University of Guadalajara</td>
</tr>
<tr>
<td>1990 to 1994:</td>
<td>Chair</td>
<td>Food Microbiology Section, School of Chemical Sciences, University of Guadalajara</td>
</tr>
<tr>
<td>1990 to 1994:</td>
<td>Chair</td>
<td>Director of the Graduate Program in Food Microbiology and Hygiene, School of Chemical Sciences, University of Guadalajara</td>
</tr>
<tr>
<td>1984 to 1992:</td>
<td>Assistant Professor</td>
<td>School of Chemical Sciences, University of Guadalajara</td>
</tr>
<tr>
<td>1982 to 1984:</td>
<td>Research Associate</td>
<td>Faculty of Chemical Sciences, University of Guadalajara</td>
</tr>
</tbody>
</table>
1979 to 1981:  Teaching Assistant  Faculty of Chemical Sciences, University of Guadalajara
1978:  Laboratory Technician  Clinical Laboratories, Autlán, Jalisco, Mexico
May-July 1978:  Chair  Director of the Clinical Microbiology Extension Laboratory, School of Chemical Sciences, University of Guadalajara
1977 to 1978:  Lecturer  Women’s University of Guadalajara
1977-1978  Intern  Professional Internship at ISSSTE Regional Hospital Bacteriology Laboratory (Mexico)

### Awards and Honors

<table>
<thead>
<tr>
<th>Year</th>
<th>Award or Honor</th>
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<tbody>
<tr>
<td>1994</td>
<td>Jalisco State Award to the Professional Merit, granted by the National Federation of Professional Boards, Mexico</td>
</tr>
<tr>
<td>1994-2002</td>
<td>Member of the Federal Researcher System, Mexico</td>
</tr>
<tr>
<td>1994-1998</td>
<td>Fulbright Scholar</td>
</tr>
<tr>
<td>2000-2002</td>
<td>President of the Mexico Association for Food Protection</td>
</tr>
<tr>
<td>2015</td>
<td>Professional Achievement Award in Food Safety (given by University Center of Exact Sciences and Engineering (College Equivalent), University of Guadalajara to a professional with lifelong achievement in food safety)</td>
</tr>
<tr>
<td>2017</td>
<td>Dean’s Outstanding Achievement Award (interdisciplinary research team)</td>
</tr>
<tr>
<td>2017-2018</td>
<td>Member of the Executive Board of the International Association for Food Protection</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Years</th>
<th>Courses</th>
<th>Credit Hours</th>
<th>Frequency Taught</th>
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<tbody>
<tr>
<td>2002 to date</td>
<td>DASC/FSTC 606 (Microbiology of Foods)</td>
<td>3</td>
<td>Spring semesters</td>
</tr>
<tr>
<td>2007 – 2010</td>
<td>DASC 202 (Dairying) Co-instructor. Taught one half of the course</td>
<td>3</td>
<td>Spring semesters</td>
</tr>
<tr>
<td>2003</td>
<td>ANSC/FSTC 457/657 (Hazard Analysis and Critical Control Point System)</td>
<td>3</td>
<td>Fall semesters</td>
</tr>
<tr>
<td>2006-2007</td>
<td>DASC/FSTC 326 (Food Bacteriology)</td>
<td>3</td>
<td>Spring and Fall semesters</td>
</tr>
<tr>
<td>2008</td>
<td>DASC/FSTC 327 (Food Bacteriology Laboratory)</td>
<td>1</td>
<td>Spring and Fall semesters</td>
</tr>
<tr>
<td>2006-2007</td>
<td>ANSC/FSTC 689 (Special Topics in Microbiological Safety in Food Processing Systems)</td>
<td>3</td>
<td>Fall semesters</td>
</tr>
<tr>
<td>1995-1998</td>
<td>DASC/FSTC 327 (Food Bacteriology Laboratory)</td>
<td>1</td>
<td>Spring and Fall semesters</td>
</tr>
<tr>
<td>1999-2007</td>
<td>International Graduate courses in Food Safety taught at:</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>o University of Guadalajara, Guadalajara, Mexico</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o University of Guatemala Valley, Guatemala</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o University of Central America, Nicaragua</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o University of Buenos Aires, Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o International Development University, Costa Rica</td>
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Graduate Student Support

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<tr>
<th>Years</th>
<th>Institution</th>
<th>No. students with degree completed</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>M. Sc.</td>
</tr>
<tr>
<td>1994-2006</td>
<td>University of Guadalajara</td>
<td>10</td>
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<tr>
<td>2002-2018</td>
<td>Texas A&amp;M University</td>
<td>10</td>
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Other Relevant Academic and Professional Activities

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<thead>
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<th>Year</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1990-1993</td>
<td>President of the Organizing Committee, National Food Safety Conference, Mexico</td>
</tr>
<tr>
<td>1995-2002</td>
<td>Food Safety Instructor, United States Department of Agriculture, Food Safety and Inspection Service Inspectors and Food Safety Officers</td>
</tr>
<tr>
<td>1997</td>
<td>Lecturer at Better Process Control School Texas A&amp;M University</td>
</tr>
<tr>
<td>1996 to date</td>
<td>International Food Safety Instructor (60+ courses taught over USA, Mexico, Central America, South America, The Caribbean and Africa). Courses include HACCP, produce safety, and other food safety topics</td>
</tr>
<tr>
<td>2001-2010</td>
<td>Member of the Editorial Board, <em>Journal of Food Protection</em></td>
</tr>
<tr>
<td>2002 to date</td>
<td>Treasurer, Texas Association for Food Protection</td>
</tr>
<tr>
<td>2006-2010</td>
<td>Member of the Board of Directors, National Alliance for Food Safety and Security. This alliance was dissolved in 2010.</td>
</tr>
<tr>
<td>2012 to date</td>
<td>Editor, <em>International Journal of Food Science</em></td>
</tr>
<tr>
<td>2014-2018</td>
<td>Member of the Managing Committee of the <em>Journal of Food Protection</em></td>
</tr>
<tr>
<td>2015-2017</td>
<td>Member of the Food and Drug Administration’s Food Advisory Committee</td>
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<tr>
<td>2016 to date</td>
<td>Delegate of Texas Association for Food Protection in front of International Association for Food Protection</td>
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Grant Support and Research Interests

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<th>Research Interests</th>
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<tr>
<td>Development of control measures for reducing pathogens in fresh and fresh-cut fruits and vegetables</td>
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<tr>
<td>Use of pathogen interventions for bacterial reduction on beef and pork products</td>
</tr>
<tr>
<td>Validation of control measures for minimizing and reducing pathogens in foods</td>
</tr>
<tr>
<td>Ecology of bacterial populations on the surface of raw fruits and vegetables</td>
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<tr>
<td>Use of electron beam irradiation for food safety purposes.</td>
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<table>
<thead>
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<th>Grant Support</th>
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<tr>
<td>$ 1,092,379; 2002-2018</td>
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Publications

- 77 articles in peer-reviewed journals
- 5 articles in newsletters and other non-scientific publications
- 10 book chapters in food safety
- 2 books as editor
- 1 patent

Relevant Peer-Reviewed Publications (sorted by year of publication)


Jason Cleere

Associate Professor and Extension Beef Cattle Specialist
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.458.3304
jcleere@tamu.edu

EDUCATION
Texas Tech University - 2002 - Ph.D. Animal Science - Beef Cattle Genetics and Management
Texas A&M University -1998 - M.S. Animal Science - Beef Cattle Production
Texas A&M University -1997 - B.S. Agricultural Science - Teaching Option

EXPERIENCE
Current Appointment: Associate Professor Extension Beef Cattle Specialist - 100% Extension
June 2005 – August 2009: Assistant Professor and Extension Beef Cattle Specialist, Department of
Animal Science Texas A&M University, Texas A&M AgriLife
Extension, College Station

Past Experience
September 2002 – May 2005: Assistant Professor and Extension Beef Cattle Specialist, Department of
Animal Science – Texas A&M University, Texas Cooperative Extension, Overton

PROFESSIONAL HONORS AND AWARDS
2017 Texas A&M Vice Chancellor’s Award in Excellence for Extension Specialist
2016 Texas A&M AgriLife Superior Service Award for Texas A&M Beef Cattle Short Course
2015 Texas A&M AgriLife Superior Service Award for Beef Production Boot Camp for Retailers
2014 Independent Cattlemen’s Association of Texas Award
2008 Vice Chancellor’s Award In Excellence for System Academic Partnership Efforts
2008 Proclamation from the Director recognizing individual contributions to Operation No Fences
2007 Texas County Agricultural Agents Association, Specialist of the Year Award
2007 Independent Cattlemen’s Association of Texas, Cattlemen’s Council Award
2004 Vice Chancellor’s Award In Excellence for an Extension Team

PROFESSIONALISM AND SERVICE
Committees and Memberships
- Texas Beef Council Board of Directors (2015 – present)
- Texas and Southwestern Cattle Raisers Association Research Committee (2012 – present)
- Madisonville Consolidated Independent School District Board Member (2013 – present)
- Madison County Fair Association Board Member (2012 – present)
- Independent Cattlemen’s Association Board of Directors (2008 – present)
- Faculty Advisor, Texas Aggie CattleWomen student organization (2008 – present)
- Texas Sustainable Agriculture Research and Education Advisory Council (2010 – present)
- TAMU Rudder/Memorial Student Center Advisory Council (2010 – present)
- TAMU ANSC Strategic Planning Committee (2011 – 2012)
- Houston Livestock Show Open Show Cattle – Asst. Superintendent (2016 – present)
- State Fair of Texas – Superintendent of the Jr. Beef Heifer Show (2009 – present)

Texas A&M AgriLife Extension Committees
– Texas A&M AgriLife Extension 20/20 Strategic Visioning Advisory Committee (2017)
– Animal Issues Incidence Resource Team (2007 – present)
– State 4-H Livestock Judging Contest – Co-Superintendent (2005 – present)
– Beef Partnership in Extension Programming (Beef PEP) (2004 – present)
– Overton Beef Specialist Selection Committee – Chair (2004 – 2005)
– Overton Forage Specialist Selection Committee (2004)
– Texas A&M AgriLife Extension Committees
– Texas A&M AgriLife Extension 20/20 Strategic Visioning Advisory Committee (2017)
– Animal Issues Incidence Resource Team (2007 – present)
– State 4-H Livestock Judging Contest – Co-Superintendent (2005 – present)
– Beef Partnership in Extension Programming (Beef PEP) (2004 – present)
– State 4-H Livestock Judging Contest – Co-Superintendent (2006 – present)
– Overton Beef Specialist Selection Committee – Chair (2004 – 2005)
– Overton Forage Specialist Selection Committee (2004)


<table>
<thead>
<tr>
<th>Year</th>
<th>Corporate Support</th>
<th>Fee Based</th>
<th>Total Funding</th>
<th>Educational Programs</th>
<th>Program Contacts</th>
<th>Presentations</th>
<th>Individual Contacts</th>
<th>*TAM BCSC Attendance</th>
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<tbody>
<tr>
<td>2011</td>
<td>$172,400</td>
<td>$165,695</td>
<td>$338,095</td>
<td>89</td>
<td>5,785</td>
<td>112</td>
<td>42,276</td>
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<td>4,997</td>
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<td>$2,972,017</td>
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<td>39,246</td>
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<td>379,089</td>
<td>11,720</td>
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</table>

*Coordinator for the Texas A&M Beef Cattle Short Course

REFERRED JOURNAL PUBLICATIONS


EXTENSION PUBLICATIONS


TEACHING
-ANSC 302 Basic Beef Cattle Production (2013 – present, ~130 students each Fall)
-ANSC 302 Basic Beef Cattle Production Online (2016 – present, ~45 students each Fall)
-ANSC 437 Marketing and Grading of Livestock and Meats (2005 – present, Guest Lecturer)
Haley Collins  
College Station, TX 77845  
Haley.Collins10@tamu.edu  
(469) 955-5159

**Education**

- **Texas A&M University**  
  PhD in Animal Science, emphasis in Genetics  
  College Station, Texas  
  Expected Graduation: 2020

- **Sam Houston State University**  
  MS in Agriculture, emphasis in Animal Science  
  Huntsville, Texas  
  December 2015

- **Oklahoma State University**  
  BS in Animal Science  
  Stillwater, Oklahoma  
  May 201

**Academic**

**Equine Science Lecturer**  
Department of Animal Science, *Texas A&M University*

- **Introduction to Equine Care and Use (ANSC 201)**  
  This course investigates all aspects of horse management and care.  
  Topics to cover include: history, breeds, identification, selection, behavior, nutrition, reproduction, health, facilities, activities, and equine careers.

- **Equine Handling and Safety (ANSC 221)**  
  Designed to provide students with the knowledge of how to work around horses safely and effectively.  
  Students will learn to describe and recognize horse behavior and identify unsafe situations for handlers. This course instructs students on how to implement basic handling techniques to control movement, evaluate health status, and describe and implement proper management conditions in a professional equine setting.

- **Equine Selection and Judging (ANSC 316)**  
  Instruct students on topics relating to the evaluation of conformation, balance, symmetry, cadence, suppleness, and impulsion will be used to understand these concepts.  
  Prepare students for participation on the Texas A&M University Competitive Horse Judging Team

- **TAMU Horse Judging Team Coordinator and Coach**  
  Prepare members of the TAMU Horse Judging Team for Intercollegiate competitions at the All American Quarter Horse Congress, AQHA World Championship Show, NCHA Futurity Collegiate Judging Contest, NRHA Futurity Collegiate Judging Contest, and various other competitions  
  Mentor students on implementing critical thinking, analytical, and articulation of ideas in an Equine Show setting.
Related Experience and Affiliations

College of Agriculture and Life Sciences, Texas A&M
- Horse Judging Coach (Current)
- Horseman’s Association (Current)
- Critical Think Academy Fellow (2016-present)
- Animal Science Graduate Student Association (Current)

Department of Agricultural Science and Engineering Technology, Sam Houston State University
- Horseman’s Association – Graduate student advisor (2014-2015)

Department of Animal Science, Oklahoma State University
- Horse Judging Team (2012-2014)
- ASAS Academic Quadrathalon Team (2014)
- Spirit Rider Team (2013-2014)
- Horseman’s Association - Vice President (2012-2014)
- Horse Judging Clinics (2012-2014)
- Oklahoma State 4-H/FFA Horse Judging Contests (2012-2014)

Community Involvement
- Officiated Ft. Worth Pinto World Youth Horse Judging Contest (2014-2018)
- Officiated San Antonio Livestock show and Rodeo Youth Horse Judging Contest (2015-2018)
- Officiated Houston Livestock show and Rodeo Youth Horse Judging Contest (2015-2018)
- Officiated area contests hosted by Texas A&M University and Sam Houston State University (2014-2018)
- Participated in Horse Judging Clinics hosted by Texas A&M University and Sam Houston State University (2014-2018)

Honors and Achievements
- AQHA World Championship Judging Contest - Reserve TAMU Horse Judging Team (Coach), 2016
- American Society of Animal Science Souther Section Meeting Graduate Student Competition - 2nd Place, 2016
- NCHA Collegiate Judging Contest - 1st Place TAMU Horse Judging Team, 2015
- SHSU College of Sciences Special Graduate Scholarship Award recipient
- OSU Academic Quadrathalon Team – 2nd Place Southern Regional Competition, 2014
- AQHA World Championship – 1st Place OSU Horse Judging Team, 2012
- Ray and Dellores Kimsey; Bob and Nell Totusek OSU Equine Scholarship recipient
- The President’s Volunteer Service Award – Gold Level and Bronze Level

Referred Abstracts
Reinaldo Fernandes Cooke

Associate Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979-458-2703 | Cell: 541-589-0055
reinaldocooke@tamu.edu

EDUCATION
2003 B.Sc. in Animal Science São Paulo State University (Brazil)
2006 M.Sc. in Animal Science University of Florida
2008 Ph.D. in Animal Science University of Florida

PROFESSIONAL EXPERIENCE
2009 to 2013 Assistant Professor Oregon State University - Department of Animal and Rangeland Sciences
2014 to 2017 Associate Professor Oregon State University - Department of Animal and Rangeland Sciences
2017 to present Associate Professor Texas A&M University - Department of Animal Science

PROFESSIONAL SOCIETIES
2004 to present American Society of Animal Sciences
2004 to present American Society of Animal Sciences – Southern Section
2009 to present American Society of Animal Sciences – Western Section

HONORS AND AWARDS
2011 Celebrating Success | Oregon State University - College of Agricultural Sciences
2014 Oregon Beef Council | Distinguished Service Award
2016 OSU | F. E. Price/Agricultural Research Foundation Award for Excellence in Research
2016 American Society of Animal Sciences - Western Section | Young Scientist Award
2017 American Society of Animal Sciences - Western Section | Extension Award
2018 American Society of Animal Sciences | Early Career Achievement Award

PUBLICATION AND INVITED SEMINAR SUMMARY
International, National, and Regional seminars 156

Publications
Refereed Journal Publications 100
Book Chapters 2
Peer-Reviewed Scientific Proceedings 34
Scientific Abstracts 119
Peer-Reviewed Extension Publications 23
General Outreach Publications 98

FUNDING SUMMARY
Competitive Grants $3,219,402
Unrestricted Cash Gifts $790,855
STUDENT ADVISING
Graduate Students (as Major Professor)  18
Undergraduate and Research Interns  34

RECENT JOURNAL PUBLICATIONS (Since 2016; PI is first or second author)


H. Russell Cross

Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.862.1705
hrcross@tamu.edu

EDUCATION:
Ph.D., Animal Science (Meats), Texas A&M University, December 1972
M.S., Animal Science (Meats), University of Florida, May 1969
B.S., Animal Science, University of Florida, April 1966

EXPERIENCE:
- Professor, Department of Animal Science, Texas A&M University
- Head, Department of Animal Science, Texas A&M University (two appointments)
- Professor, Department of Animal Science, Texas A&M University
- Chief of Staff to the President, Executive Vice President for Operations, Texas A&M University
- Deputy Vice Chancellor and Associate Dean, Agriculture and Life Sciences, Texas A&M University
- Associate Director, Texas A&M AgriLife Research
- Executive Vice President, Food Safety/Government & Industry Affairs, National Beef Packing Co., Kansas City, MO
- Vice President, DuPont Food Industry Solutions
- Chief Executive Officer, Future Beef Operations, L.L.C.
- Director, IDEXX Food Safety Net, Inc.
- Chief Executive Officer, International HACCP Alliance
- Director of the Institute of Food Science and Engineering, Texas A&M University
- Administrator, Food Safety and Inspection Service, USDA, Washington, D.C.
- Holder of E.M. Rosenthal Chair in Meat, Animal & Food Science, Texas A&M University
- Professor and Section Leader of the Meats and Muscle Biology Section, Department of Animal Science, Texas A&M University
- Research Leader, Meats, U.S. Meat Animal Research Center, ARS USDA, Clay Center, NE
- Research Scientist, Meat Science Research Laboratory, ARS, USDA, Beltsville, MD
- Livestock & Meat Marketing Specialist, AMS, USDA, Washington, DC
- Instructor and Graduate Assistant, Texas A&M University
- Meat Grader, AMS, USDA, Kansas City, MO

MEMBERSHIP IN ORGANIZATIONS:
- American Society of Animal Science
- American Meat Science Association
- National Association for the Advancement of Animal Science
- National Cattlemen’s Beef Association
- Texas and Southwestern Cattle Raisers Association
- Institute of Food Technologists
- Alpha Zeta
- Gamma Sigma Delta
- Phi Tau Sigma (past President)
- Past Board Chairman, International Stockmen’s Educational Foundation
- Board Member, International Stockmen’s Educational Foundation (1986-present)
BOARD OF DIRECTORS
- Board Member, American Meat Institute (2001-2002)
- Board Member, National Meat Association (2001-2002)
- Board Member, Texas Society for Biomedical Research (2005–2008)
- President and Board Member, American Meat Science Association (1980-82, 1983-84)
- President, National Association for the Advancement of Animal Science (2012-2016)
- Board Member, National Association for the Advancement of Animal Science (2012-present)
- Member, Council of Principal Investigators, Texas A&M University (2017-present)

MANAGEMENT/LEADERSHIP EXPERIENCE:
- Administrator of USDA’s Food Safety and Inspection Service under Presidents Bush and Clinton.
  Responsible for all domestic and imported meat and poultry food safety programs in the U.S. Managed
  a budget of over $600,000,000 and more than 10,000 employees. Intensive dealings with Congress,
  meat inspection labor unions, consumer advocate groups, media and all segments of the meat and
  poultry industry.
- Founder and Director of Texas A&M’s Institute of Food Science and Engineering (four centers across
  three colleges and two agencies).
- Director of IDEXX’s Food Safety Net Services, Inc. Started up a new company within the parent
  company. Managed the P&Ls for three business units within the company.
- Chief Executive Officer of Future Beef Operations, LLC, a vertically integrated beef company from
  ranch to retail.
- Executive Vice President of the fourth largest beef packer in the world (National Beef).
- Deputy Vice Chancellor and Associate Dean, Agriculture and Life Sciences
- Associate Director, Texas A&M AgriLife Research
- Chief of Staff to the President, Executive Vice President for Operations, Texas A&M University
- Founder and President of the National Association for the Advancement of Animal Science
- President of Phi Tau Sigma (national honor society for food scientists)

PROFESSIONAL AWARDS AND RECOGNITION:
- American Society of Animal Science Young Scientist Award, 1978
- American Society of Animal Science National Meat Research Award, 1983
- Deputy Chancellor Award for Team Research, Texas A&M, 1986
- George Strathearn Memorial Research Award, CA Beef Council, 1987
- Merchandiser of the Year Award, Texas Cattle Feeders Association, 1988
- Progressive Farmer, Man of the Year Award, 1989
- Distinguished Research Award, American Meat Science Association, 1990
- Educator of the Year Award, North American Meat Processors Association, 1991
- Signal Service Award, American Meat Science Association, 1992
- Forbes Award, National Meat Association, 1996
- Distinguished Service Award, U.S. Meat Export Federation, 1998
- Industry Advancement Award, American Meat Institute, 1998
- R. C. Pollock Award, American Meat Science Association, 1999
- Hall of Fame Recipient, International Stockmen’s Education Foundation, 2002
- Meat Industry Hall of Fame Inductee, 2009
- Carl Fellers Award, IFT, 2014
- Fellow, Institute of Food Technologists, 2015
- Beef Cattle Short Course Dedication, Texas A&M University, 2017
- Southwest Meat Association Hall of Fame Inductee, 2017
- Special Recognition Award, Phi Tau Sigma/IFT, 2018
NOTABLE ACCOMPLISHMENTS:
- Led the team that conducted the National Consumer Beef Retail Study (1985-1986). Triggered the U. S. retail shift to 1/8 in. trim.
- Chaired the beef industry’s Value Based Marketing Task Force (1988-1989). Resulted in shift from 1.0-inch surface fat on primal cuts to 1/4-inch.
- Founding Director of Texas A&M’s Institute of Food Science and Engineering (1994-1997).
- Founded the International HACCP Alliance (CEO from 1994-1997). Organization designed to assist the food industry prepare for mandatory HACCP. Membership includes over 40 industry associations, 50 universities and regulatory government agencies from over 12 countries.
- Founded the National Association for the Advancement of Animal Science (30 university members). Founded to lobby the federal government for research dollars.
- Author or co-author of 242 scientific journal articles and nine book chapters.

RESEARCH AND OUTREACH INTERESTS:
- Integrated food production systems
- Total quality management systems
- Marketing systems for red meat
- Safety of food products
- Antemortem and postmortem factors affecting meat quality
- Animal and carcass grading systems
- Growth and composition of animals and carcasses
- Role of meat in the human diet
Courtney Lynd Daigle
Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.862.9171
cdaigle@tamu.edu

Education
- B.S., Zoology, Oklahoma State University, Stillwater, OK (2000-2004)
- M.S., Zoo & Aquarium Management, Michigan State University, East Lansing, MI (2006-2008)
- Ph. D., Animal Science, Michigan State University, East Lansing, MI (2009-2013)

Experience
- Assistant Professor, 45% Teaching, 45% Research, 10% Service, Department of Animal Science, Texas A&M University (2016-Present)
  - Duties: Development and leadership of an independent, extramurally-funded research program in stress physiology, behavior, and/or the assessment and enhancement of well-being in agricultural animals.
  - Research: Empirically evaluating animal management strategies (environmental enrichment, exercise programs, handling techniques), conducting temperament evaluations, and identifying how these behavioral outcomes relate to physical and physiological metrics. Evaluation of the human-animal interaction, the use of behavioral proxies of animal health status, and the impact of social mixing on the behavior, health and welfare of cattle.
  - Teaching: Didactic instruction of undergraduate students in the Behavior and Management of Domestic Species and graduate students in Bioethics and Animal Welfare. Outreach activities are expected to promote scientific research to the general public and to ensure the future of science in the United States.
- Postdoctoral Research Associate, Center for Animal Welfare Science and the Center for the Human-Animal Bond, Purdue University (2014-2015)
  - Duties: Project management, ethical board compliance documentation, project organization and scheduling, equipment purchase and maintenance, employee hiring and training, manuscript preparation, preparation of extension and white papers that translate scientific findings to lay audience
  - Projects: Relationship between UV feather reflectivity and feather pecking behavior in laying hens, Relationship among maternal hormones, social support, and piglet crushing in gestating sows, Impact of multiple animal species on the social behaviors of autistic children, impact of animals on behavioral development of people with autism, Impact of service dogs on wellbeing of veterans with PTSD, refinement of OHAIRE coding system to quantify human and animal behavior during human-animal interaction
- Research Technologist, Dept. of Animal Science, Michigan State University (2008-2014)
  - Duties: Daily laboratory management, employee hiring, scheduling, and training, equipment maintenance, camera installation, video decoding, data collection, statistical analysis, data quality control, MSDS and safety training record keeping, serotonin and corticosterone hormone assessment, On-farm utilization and critical assessment of Welfare Quality® Assessment for Poultry, Created, analyzed, and provided verbal and written report of departmental statistics regarding students, teaching, accounting, research and extension activities for the Departmental of Animal Science’s Academic Program Review
Projects: Wireless sensor technology development, laying hen behavior, dairy cattle behavior around a robotic automatic milking system, beef cattle temperament testing, pig fear testing, coordinate Michigan zoo welfare meetings, feather pecking behavior and environmental enrichment in laying hens, turkey feather pecking behavior, impact of genetics and life history on aggression and play behavior in pigs, relationship between behavior at slaughter and behavior during handling in Limousin x Angus cattle

Research Fellow, Wageningen Institute of Animal Sciences, Wageningen University (2011)
- Research interests: feather pecking, coping style, stress physiology, endocrinology, animal welfare
- Projects: Whole blood serotonin and platelet uptake of serotonin laboratory assay training, microdialysis of the amygdala during a manual restraint test, on-farm Welfare Quality assessment

Research Intern, Smithsonian National Zoological Park (2008)
- Research interests: reproductive endocrinology
- Duties: African lion fecal hormone extraction and cortisol analysis

- Duties: animal husbandry, enrichment and training, keeper chats
- Service: founded and served as president of Baton Rouge chapter of American Association of Zoo Keepers, established zoo-wide recycling program

TEACHING

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<td>ANSC 291: Undergraduate research</td>
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<td>ANSC 310/404: Beh &amp; Mgmt of Domestic Species</td>
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<td>ANSC 485: Undergr directed studies</td>
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<td>ANSC 491: Undergraduate research</td>
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<td>ANSC 685: Graduate directed studies</td>
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<td>ANSC 691: Graduate research</td>
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<td><strong>Total students</strong></td>
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Additional teaching efforts
- ANSC 689: Special Topics – Bioethics and Animal Welfare (Spring 2019)
- HILE: Dog socialization and clicker training – joint with Comparative Medicine Program
- HILE: Animal Welfare Judging Team – Coach and Faculty advisor
- Online: International Beef Cattle Academy – lead instructor for Cattle Behavior & Welfare module

Graduate Student Committee Involvement

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<th>Degree</th>
<th>Since last promotion</th>
<th>Career</th>
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<td>Member</td>
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<td>Master of Science</td>
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RESEARCH

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<td>21</td>
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<td>Scientific Abstracts</td>
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<td>Books</td>
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<td>Chapters in Books</td>
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<td>3</td>
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<tr>
<td>Extension Agency Publication</td>
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<tr>
<td>Popular/Industry Articles</td>
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Selected Peer-Reviewed Publications (*indicates ABWL graduate student)

  
  o **Media highlights/interest:** USDA-ARS, RSPCA, WAP


Book Chapters


Conference Proceedings Publications

- Mathias A and **Daigle CL**. In prep. Easing the transition: utilizing feedlot cattle behavior as a management tool. Journal of Animal Science


- **Daigle CL**. 2017. A systems based approach to cattle management and welfare. Beef Cattle Short Course, College Station, TX.
Grants and Contracts Awarded

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<td>Total dollars to all PIs</td>
<td>Dollars allocated to my program</td>
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<td>External Competitive</td>
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<tr>
<td>PI</td>
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<tr>
<td>Co-PI</td>
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<td></td>
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<tr>
<td>Total (PI + Co-PI)</td>
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<tr>
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<tr>
<td>Co-PI</td>
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<td>External Non-competitive</td>
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<tr>
<td>PI</td>
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<td>$13,529</td>
</tr>
<tr>
<td>Co-PI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (PI + Co-PI)</td>
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<td>$13,529</td>
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<tr>
<td>Internal Non-competitive</td>
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<td></td>
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<tr>
<td>PI</td>
<td></td>
<td></td>
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<tr>
<td>Co-PI</td>
<td></td>
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</tr>
<tr>
<td>Total (PI + Co-PI)</td>
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<tr>
<td>Other</td>
<td>Gifts and Gifts-in-kind</td>
<td>$23,295</td>
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<td>Royalties to program</td>
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</table>

Pending Applications (total $2.5 million)

- Cooke R, Lamb GC, Daigle CL (Co-PI), and Pohler K. Stocking density and management considerations for beef heifers reared in drylots. USDA-AFRI Foundational: Animal Well-Being. $499,319
- Pohler K, Lamb GC, Cooke R, Cardoso R, Daigle CL (Co-PI), Foster J. Systems-based approach to enhance beef cattle production in tropical/subtropical environments. $1.5 million

Departmental Service

- Stakeholder interactions
  - King Ranch, Friona Industries, TCFA, Cactus Feeders, Houston Zoo, Graham Land and Cattle Company, Texana Feeders, Canada Gold lamb feedlot (Alberta, Canada), Barrhill Feeders (Alberta, Canada), Thompson Livestock (Alberta, Canada)
- Animal Welfare Club: Faculty advisor
- Texas Aggie Cattlewomen: Faculty advisor

External Committees

- SYSCO Animal Welfare Council
Kathrin A. Dunlap
Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.4896
kdunlap@tamu.edu

Education:
Postdoctoral Training, Reproductive Biology & Immunology, Department of Veterinary Integrative Biosciences, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station, Texas, June 2009
Postdoctoral Training, Vascular Development, Department of Molecular and Cellular Medicine, Texas A&M Health Science Center, Texas A&M University System, College Station, Texas, June 2009
Doctor of Philosophy, Physiology of Reproduction, Department of Animal Science, Texas A&M University, College Station, Texas, August 2006
Master of Science, Endocrinology, Department of Animal Sciences, Oregon State University, Corvallis, Oregon, August 2002
Bachelor of Science, Department of Animal Sciences, Oregon State University, Corvallis, Oregon, August 2001

Appointments:
Assistant Professor, January 2013-Present. Department of Animal Science, Texas A&M University
Research Assistant Professor, 2011-2012. Physiology of Reproduction. Department of Animal Science, Texas A&M University, College Station, TX.
Associate Research Scientist, 2009-2011. Physiology of Reproduction. Department of Animal Science, Texas A&M University, College Station, TX

Teaching Experience:
Course Development and Instruction (past 5 years)
2013-2015  Instructor, ANSC 491: Senior Seminar
2013-2017  Developer and Instructor, ANSC 230; Basic Animal and Research Experience
2015-2017  Instructor, ANSC 433; Farm Animal Reproduction
2017  Instructor, ANSC 689; Graduate Presentation Preperation
2013-Present  Instructor, ANSC 107(H); General Animal Science
2015-Present  Instructor, ANSC 289/485; Undergraduate Research
2017  Instructor, ANSC 289/485; Undergraduate Research
2015-Present  Developer and Instructor, ANSC 107 (online); General Animal Science
2018  Developer, ANSC 113; Livestock Physiological Systems
2018  Developer, ANSC 489 (online); Animal Science Systems Review*
* Joint project with ALEC student teacher preparation program

Undergraduate Student Research Projects Supervised (of 18)
1. Robert Price Ruffian, Project: “Expression of Ornathine Decarboxylase and Arginine Decarboxylase in the ovine placenta following maternal nutrient restriction” (2014-2017) *Research is part of Texas A&M University Undergraduate Honors program; Published in Texas A&M University Undergraduate Honors Journal, Explorations
2. Lauren Boyd, Project: “Localization of angiogenic factors in the ovine uterus following maternal nutrient restriction” (2015-2018) *Research is part of Texas A&M University Undergraduate Honors program; Undergraduate Honors Thesis
### Graduate Student Committees

<table>
<thead>
<tr>
<th></th>
<th>Chair or Co-Chair</th>
<th>Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Agriculture</td>
<td>0</td>
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<tr>
<td>Master of Science</td>
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</tr>
<tr>
<td>Ph.D.</td>
<td>1</td>
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</table>

1. Dr. Ashley Keith (September 2011-2015; Co-Chair). Title of Dissertation: *Adaptive mechanisms of placental nutrient transport*. Dr. Keith is currently an Assistant Professor at Louisiana Tech University.

2. Ms. Hannah DelCurto (September 2012-June 2014; Chair). Title of Master’s Thesis: *Role of Anterior Gradient Regulatory Factor 2 (Agr2) in ovine implantation and placentation*. Ms. DelCurto is currently an instructor in the Department of Animal Science at Montana State University.

### Teaching Improvement Activity (Since 2017)

- Critical Thinking Academy, (1/15/17 – 12/1/17) Sponsor: College of Agriculture and Life Sciences, Texas A&M University.

### Honors and Recognition:

- *Association of Former Students Distinguished Achievement College-Level Teaching Award*, College of Agriculture and Life Sciences, Texas A&M University (2017)
- *Fellow, Critical Thinking Academy*, College of Agriculture and Life Sciences, Texas A&M University (2017)
- *Inductee, Achievement Hall of Fame – Livestock Judging Team*, Crater High School, Central Point, Oregon (2017)
- *Honor Professor Award*, College of Agriculture and Life Sciences, Texas A&M University (2016)
- *Inductee, Achievement Hall of Fame - Individual*, Crater High School, Central Point, Oregon (2016)
- *Dean’s Outstanding Achievement Award for Early Career Teaching*, College of Agriculture and Life Sciences, Texas A&M University (2015)

### Research and Teaching Grants and Contracts Awarded Summary Table:

<table>
<thead>
<tr>
<th>Type and Role</th>
<th>Since Appointment</th>
<th>Career</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total $ to all PIs</td>
<td>$ allocated to program</td>
</tr>
<tr>
<td><strong>External</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Co-I</td>
<td>$1,836,093</td>
<td>$186,193</td>
</tr>
<tr>
<td>Total (PI + Co-PI)</td>
<td>$1,836,093</td>
<td>$186,193</td>
</tr>
<tr>
<td><strong>Internal</strong></td>
<td></td>
<td></td>
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<tr>
<td>PI</td>
<td>$98,430</td>
<td>$98,430</td>
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<tr>
<td>Total (PI + Co-PI)</td>
<td>$98,430</td>
<td>$98,430</td>
</tr>
<tr>
<td><strong>Funding Total</strong></td>
<td><strong>$1,934,523</strong></td>
<td><strong>$284,623</strong></td>
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</tbody>
</table>
Representative Scholarly Work (From 2017):
† denotes corresponding author; * denotes trainee (graduate student or postdoctoral fellow)

**Book Chapters**

**Peer-Reviewed Publications**

**Abstracts Presented at Scientific Meetings (2018 only)**
6. Dunlap KA, Frenzel LL, Ramsey WS. Increased exposure of undergraduate students to animal agriculture: Creation of a face to face and online general animal science course as part of a university core curriculum. 2018. American Society of Animal Science. Vancouver, CA (Poster Presenter).

**Service:**

**Professional Organizations**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Society for the Study of Reproduction</td>
<td>2001-present</td>
</tr>
<tr>
<td>American Society of Animal Science</td>
<td>2014-present</td>
</tr>
<tr>
<td>Society for Gynecological Investigation</td>
<td>2010-2014</td>
</tr>
<tr>
<td>Graduate Faculty at Texas A&amp;M University</td>
<td>2010-present</td>
</tr>
<tr>
<td>Intercollegiate Faculty of Reproductive Biology</td>
<td>2009-present</td>
</tr>
</tbody>
</table>

**International Service**
1.) Ad hoc reviewer for 8 refereed scientific journals
2.) Abstract reviewer for International Ruminant Reproduction Symposium
3.) Society for the Study of Reproduction
Nominating Committee, 2017; Newsletter Editor, 2014-2017
Public Affairs Committee, 2014-2017

National Service
1.) USDA AFRI-NIFA, Animal Reproduction, Competitive Grants Panel member (2016)

University Service
1.) Dean of Faculties Search Committee, 2015
2.) Interdisciplinary Faculty of Reproductive Biology Membership Committee Chairperson (2013-present)

College Service
1.) Department of Agriculture Leadership, Education, and Communication, Assistant Professor Search Committee (2017)
2.) Distance Education Advisory Council (2014-2016)

Departmental Service
1.) Department of Animal Science Faculty Advisory Council (2017-present)
2.) Department of Animal Science Undergraduate Program Committee (2017-present)
3.) Department of Animal Science Undergraduate Curriculum Revision (2015-2018)
4.) Department of Animal Science Workplace Climate Committee (2016-present)

Student Activities Service
1. Advisor, Texas Aggie Cattlewomen (2016-Present)
2. Intercollegiate Livestock Judging Contest, Houston Livestock Show & Rodeo (HSLR), Contest Official and Reasons Taker, Sheep Committee Member, (2005-2018)
David W. Forrest

Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.458.8464
d-forrest@tamu.edu

Academic Background

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
<th>Year</th>
<th>Major</th>
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<tbody>
<tr>
<td>University of Wyoming</td>
<td>Ph.D.</td>
<td>1979</td>
<td>Reproductive Physiology</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>M.S.</td>
<td>1976</td>
<td>Physiology of Reproduction</td>
</tr>
<tr>
<td>Abilene Christian College</td>
<td>B.S.</td>
<td>1974</td>
<td>Animal Science</td>
</tr>
</tbody>
</table>

Current Titles

1993-Present:  Professor of Reproductive Physiology, Departments of Animal Science and Large Animal Clinical Sciences, Texas A&M University, College Station.

1995-Present:  Charter Diplomate, American College of Animal Physiology

Previous Titles

2009-2016:  Professor and Associate Head for Academic Programs, Department of Animal Science, Texas A&M University, College Station

2007-2009:  Professor and Leader, Physiology of Reproduction Section, Department of Animal Science, Texas A&M University, College Station.

1993-Present:  Professor of Reproductive Physiology, Departments of Animal Science and Large Animal Clinical Sciences, Texas A&M University, College Station.

1989-1993:  Associate Professor of Reproductive Physiology, Department of Large Animal Medicine, Texas A&M University, College Station.

1986-1993:  Associate Professor of Reproductive Physiology, Department of Animal Science, Texas A&M University, College Station.

1980-1986:  Assistant Professor of Reproductive Physiology, Department of Animal Science, Texas A&M University, College Station.


1977-1979:  Graduate Teaching and Research Assistant in Reproductive Physiology and Meat Science, Division of Animal Science, University of Wyoming, Laramie.

1974-1976:  Graduate Teaching Assistant in Physiology of Reproduction, Department of Animal Science, Texas A&M University, College Station.
1972-1974: Teaching Assistant and Coach, Junior Livestock Judging Team, Department of Agriculture, Abilene Christian College, Abilene, TX.

Teaching

**Undergraduate Courses** – Texas A&M University, Instructor

ANSC 433 Reproduction in Farm Animals; Each Fall, Spring and Summer Session I (1981-2012)
ANSC 485 Directed Studies in Reproduction; Avg 3 students/year (1981-Present)

**Undergraduate Courses** – Texas A&M University, Invited Lectures

ANSC 107 General Animal Science; Fall, Spring, and Summer Session I (1981-1986 and 1989)
ANSC 302 Basic Beef Cattle Production; Fall (2002-2008)
ANSC 434 Animal Reproduction Management; Fall and Spring (1997-2008)

**Undergraduate Courses** – Teaching Assistant

Anatomy and Physiology (Spring), Meat Processing (Fall), Meat Animal Evaluation (Spring), and Meat, Poultry and Game Processing (Spring), University of Wyoming, 1977-1979
Reproduction in Farm Animals (Fall, Spring and Summer Session I), Texas A&M University, 1974-1976
General Animal Science (Fall) and Livestock Evaluation (Spring), Abilene Christian College, 1972-1974

**Graduate Courses** – Texas A&M University, Instructor

ANSC 633 Concepts in Reproduction; Spring (2017 and 2018)
ANSC 681 Graduate Seminar Fall or Spring or Summer (2013-2015)
ANSC 684 Professional Internship Fall, Spring and Summer (2009-present)
ANSC 685 Directed Studies in Reproduction; Avg 1 student/year (1981-Present)

**Graduate Courses** – Texas A&M University, Co-Instructor

ANSC 631 Physiology of Reproduction; Fall (1984-2001)
VLAM 622 Andrology; Fall (1990 and 1993)

**Graduate Courses** – Texas A&M University, Invited Lectures

ANSC 605 Advancements in Beef Cattle Production; Fall (1885-1986)
ANSC 630 Reproductive Biology I; Fall (2003 and 2005)
VLAM 621 Reproductive Diseases of Female Domestic Animals; Fall (1987 and 1989)

**Student Evaluations of Undergraduate Teaching in ANSC 433**
(Total of 10,351 students in ANSC 433 since 1981)
Mean Rating 4.75 on a 5.0 point scale

Graduate Student Training
- Chair of Advisory Committee
  Ph.D. Students (11 total)
  M.S. Students (23 total)
  M.Agr. Students (4 total)
- Co-Chair of Advisory Committee
  Ph.D. Students (8 total)
  M.S. Students (11 total)

Honors and Awards

Recognition for Teaching
- Teacher of the Year, TAMU Chapter of Alpha Gamma Rho (1983)
- Incentive in Excellence Award ($1,000), TAMU Center for Teaching Excellence (1988)
- TAMUS Deputy Chancellor for Agriculture’s Award in Excellence for Undergraduate Teaching (1990)
- Association of Former Students of TAMU Distinguished Award in Teaching – College Level (1992)
- Haas-Litterst Outstanding Teaching Award, Department of Animal Science (1998)
- Outstanding 4-H Leader, District 9 (1999)
- Teaching Award of Merit, TAMU Chapter of Gamma Sigma Delta (2006)
- Fellow, Teaching, American Society of Animal Science (2014)

Recognition for Research
- Competition Paper Award-First Runner-up, Western Section American Society of Animal Science (1979)
- TAMUS Deputy Chancellor for Agriculture’s Award in Excellence for Team Research (1990)
- Certificate of Recognition for article published in Theriogenology, 67, 486-493 as one of top downloaded articles in 2007

Recognition for Service
- Phi Kappa Phi (1979), President, TAMU Chapter (1989-1990)
- Gamma Sigma Delta (1977)
- Faculty Advisor, TAMU Collegiate 4-H Club (1987-2006)
- Brazos County 4-H Adult Leaders Association, President (1997-1999); Outstanding Member (1999)
- Honorary Chapter FFA Degree, A&M Consolidated FFA (2000-2001)
- Outstanding Member, A&M Consolidated Young Farmers (2001)
- Honorary Lone Star FFA Degree, Texas FFA (2007)
- Board of Directors, Brazos County Youth Livestock Association, Second Vice President (2006-2007); Chairman (2007-2009)
- Fish Camp Namesake, TAMU (2006)
- Selected as Outstanding Alumnus of the Year, Abilene Christian University, Department of Agricultural and Environmental Science (2008)
- Faculty Advisor, Animal Science Graduate Student Association (2009-Present)
- Member, American Society of Animal Science Triennial Reproduction Symposium Committee (2010-2012)
- Faculty Advisor, Animal Science Academic Quadrathlon Team (2011-Present) National Champion Team 2012 and 2018
- Honorary Member, TAMU Saddle & Sirloin Club (2013)
- Advisor of the Year, Affiliated Student Organization, Saddle & Sirloin Club, Student Activities, Texas A&M University (2016-2017)
- College of Agriculture and Life Sciences Dean’s Outstanding Achievement Award for Excellence in Service, 2017
- Texas A&M AgriLife Vice Chancellor’s Award in Excellence - Special Services, 2017
- University Faculty Development Leave Committee, represent College of Agriculture and Life Sciences, 2018-2021
- Faculty Senator, College of Agriculture and Life Sciences, 2018-2021

Publications and Extramural Funding
- A Total of 93 Papers in Refereed Scientific Journals
- A Total of 132 Abstracts
- More than $2 million in Grants and Contracts
Leslie Frenzel

Instructional Assistant Professor
Undergraduate Academic Advisor
Intercollegiate Meat Judging Program Coordinator
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.845.7616
lesliefrenzel@tamu.edu

EDUCATION
Bachelor of Science: Animal Science – Tarleton State University, Stephenville, TX – 2008
Master of Science: Animal Science – Tarleton State University, Stephenville, TX – 2010
Doctor of Philosophy: Animal Science (Meat Science & Food Safety) – Texas A&M University,
College Station, TX – 2014

EXPERIENCE
Current Position
Instructional Assistant Professor, Departmental Undergraduate Internship Coordinator,
Undergraduate Academic Advisor, and Intercollegiate Meat Judging Team Coordinator;
Department of Animal Science, Texas A&M University, College Station, TX

Instructional Assistant Professor
• ANSC 107: General Animal Science ~340 students per semester
  o Scientific animal agriculture, selections, reproduction, nutrition, management, and
    marketing of beef cattle, swine, sheep, goats, and horses; evaluation and processing of
    meat, wool, and mohair. Importance of the livestock and meat industries.
    ▪ Professor of record: Spring, Summer, and Fall semesters
• ANSC 317: Meat Selection, Evaluation and Grading ~65 students per semester
  o Selection and grading of carcasses and wholesale cuts of beef, pork, and lamb; principles
    of evaluation included in carcass contests and progeny testing.
    ▪ Professor of record: Fall semester
• ANSC 402: Exploring Animal Industries ~50 students per semester
  o Instruction for students near the end of their undergraduate studies; theoretical
    understanding of organizations and human resources available to students; awareness and
    understanding of the job application process, resume and cover letter writing; networking,
    professional and business attire; ethics related to job searches and retention.
    ▪ Professor of record: Spring and Fall semesters
• ANSC 494: Animal Science Internships ~30 students per semester
  o Independent study and supervised filed experience related to the student’s professional
    interest.
    ▪ Professor of record: Spring, Summer, and Fall semesters
• ANSC 481: Seminar ~20 students per semester
  o Review of literature and research problems related to the livestock and food industries;
    preparation of technical report including an oral presentation supported by a written
    technical paper.
    ▪ Professor of record: Spring and Summer semesters

Undergraduate Academic Advisor
• Advise undergraduate and graduate students (student population of approximately 1,200) with academic progression, professional goals, personal development, and growth in the Animal Science Department.
  o Assist with change of majors, prospective students, transfer students, and incoming freshmen.
• Perform advising tasks to include course selection, presenting at New Student Conferences (15 conferences per academic year), processing Q-drops, late registrations, withdrawals, and submitting curricular adjustments, course overrides and exceptions to submit to the Office of the Registrar for degree audit approval.
• Encourage students to take advantage of external resources and opportunities (e.g. internships, certificate programs, research experiences, etc.) beneficial to their academic and professional development; providing individual advising to assist in overcoming academic, professional, and personal challenges.
• Organize and participate in recruiting for the undergraduate Animal Science program by attending recruiting events such as Aggieland Saturday and State FFA Convention

**Intercollegiate Meat Judging Team**
The Meat Judging Team consists of intelligent, dedicated, and talented sophomore and junior students interested in competition, representing the Department of Animal Science, and being dedicated to our program. In the fall semester students interested in participating on the team will enroll in ANSC 317 Meat Selection, Evaluation, and Grading. ANSC 317 is designed to teach and prepare students for upcoming competitions. The subsequent spring and fall semesters the students will compete in seven competitions across the United States. The Spring semester consists of the National Western, Greeley, CO; Southwestern, Fort Worth, TX; HLSR, Houston, TX; and the Fall semester consists of the Eastern National, Wyalusing, PA; American Royal, Omaha, NE; High Plains, Friona, TX; and the International, Dakota City, NE. Intercollegiate Meat Judging teams will compete in the following areas: Quality and Yield Grading (15 beef carcasses), 5 reasons classes (beef carcass, beef cuts, pork carcass, pork cuts, and lamb carcass classes), Specifications (10 beef, lamb, or pork cuts), and 5 placing classes (value-based pricing, beef cuts, pork carcass, pork cuts, and lamb carcass classes).

**Intercollegiate Meat Judging Team Coordinator**
• ANSC 317: Meat Selection, Evaluation and Grading ~65 students per semester
  o Selection and grading of carcasses and wholesale cuts of beef, pork, and lamb; principles of evaluation included in carcass contests and progeny testing.
    ▪ Professor of record: Fall semester
• Organize and participate in recruiting exceptional prospective students for the Fightin’ Texas Aggie Meat Judging Program in the Department of Animal Science including events such as TAMU Meat Judging Clinic, Don Palmer Memorial Meat Judging Competition, Texas FFA Area and State Meat Judging Competitions, Southwestern Livestock Show and Rodeo FFA & 4-H Meat Judging Competition, Fightin’ Texas Aggie Meat Judging Camp, 4-H Round-up Meat Judging Contest.
• Recruit interdepartmental and external students for ANSC 317: Meat Selection, Evaluation and Grading. Utilize this course to select and train students for the Fightin’ Texas Aggie Intercollegiate Meat Judging Team.
• Select and mentor former judgers both interdepartmental and external to Texas A&M to serve as the graduate student coach for the program.
• Coordinate with Rosenthal Meat Science and Technology Center for use of perishable product and facility usage.
• Schedule and organize graduate and undergraduate student travel.
• Organize and execute fundraising efforts for judging program. Funds earned are utilized for graduate and undergraduate student travel.
  o First annual Don Palmer Memorial Meat Judging Completion
  o TAMU Meat Judging Clinic
Texas FFA Area and State Meat Judging Competition Entry Fees
- Houston Livestock Show and Rodeo Pork, Goat, and Lamb Slaughter and Processing
- Muddapalooza Tournament
- ANSC 307 Knife and Scabbard Sales
- Meat Science Cap Sales
- Establish and foster alumni relations through email, newsletters, postcards, social media, and events.
  - Meat Judging Team Reunion
  - All Judging Team Reunion
  - Meet the Team-Breakfast Tailgate
- Coached the 2013 and 2015 Texas A&M University Meat Judging Team.

Previous Positions
Graduate Teaching/Research Assistant, Texas A&M University, 2010 – 2014
- Teach Meat Science and Meat Evaluation lectures and laboratories
  - ANSC 307: Meat Science
  - ANSC 307: Meat Science, Honors
  - ANSC 317: Meat Selection, Evaluation, and Grading
  - ANSC 627: Carcass Composition and Quality; Lecture Assistant
- Assist with several funded research projects in Meat Science and Food Safety.
- Participate in the proposal and grant writing process.
- Help teach Texas A&M AgriLife Extension programs:
  - Beef 101
  - Beef 706 (Adult and Youth)
  - Zoetis Beef University
  - Kroger Boot Camp
  - Center of the Plate
  - Pork 101 (Adult and Youth)
  - Barbeque Summer Camp and Camp Brisket
- Coached the 2013 Texas A&M University Meat Judging Team.

Graduate Research Assistant/Meat Laboratory Manager, Tarleton State University, 2008 – 2010
  - ANSC 321: Meat Science Lecture and Lab
  - ANSC 307: Market Animal Evaluation Lecture
  - ANSC 207: Livestock and Meat Evaluation Lecture
- Organized and led university funded research projects
- Assisted in the proposal and grant writing process
- Coached the 2009 Meat Judging Team
- Managed the Research and Custom Harvest Operations
- Maintained HACCP records for the University Meat Lab
- Managed and scheduled Meat Lab student workers

Research/Publications


**Awards/Honors/Organizations:**

- 2018 Dean’s Outstanding Achievement Award in Early Career Teaching
- 2016 Margaret Annette Peters Faculty Advising Award
- 2015 North American Colleges and Teachers of Agriculture Graduate Teaching Award of Merit
- 2013 Association of Former Students Distinguished Graduate Student Teaching Award
- 2013 Ronnie L. Edwards Outstanding Graduate Student Teaching Award
- 2013 Fightin’ Texas Aggie Meat Judging Coach
- 2012 Southwest Meats Association Bob Ondrusek Memorial Scholarship Award
- 2011 Zerle L. Carpenter Outstanding Graduate Student Award in Meat Science
- 2009 National Champion Meat Judging Coach
- 2007 TSU Sigma Alpha President
- 2006 TSU Alpha Zeta President
- 2006 TSU Block and Bridle Secretary
- 2006 TSU COAES Ag Ball Coordinator
- 2005-present Southwest Meat Association Bob Ondrusek Memorial Scholarship Award
- 2005 TSU Meat Judging Team Member
- 2005 Receipt of AMSA Rachel Hamilton Award
- Member of American Meat Science Association (AMSA)
- Member of Southwest Meat Association
- Former Student Member of AMSA Student Board of Directors
- Former Student Member of Beef Industry Food Safety Council (BIFSCo)
- Former Member of Texas A&M University Animal Science Graduate Student Association

**Professional Organizations**

- Member of American Meat Science Association
  - 2018 Long-term financial planning committee for the Intercollegiate Meat Judging Program
  - 2018 A-Division development committee member
  - 2017 Planning Committee Member: Reciprocal Meats Conference
  - 2017 Reciprocal Meats Convention Host Committee Member
  - 2017 Reciprocal Meats Convention Host Committee Member liaison for the Student Board of Directors
  - 2017 Coaches Association: Reciprocal Meats Conference: Coaches Clinic Planning Committee Chair
- Member of the Southwest Meat Association
  - 2018 Planning Committee
  - 2016-Present: Scholarship Committee
  - 2015-Present: Golf Hole Sponsorship Committee
Kerri B. Gehring

Professor and Presidential Impact Fellow
President/CEO, International HACCP Alliance
Department of Animal Science
Texas A&M University
College Station, Texas 77843-2471
979.862.3643
kbgehring@tamu.edu

EDUCATION
A. Bachelor of Science: Food Science and Technology, Department of Animal Science, Texas A&M University, College Station, Texas (1986).
B. Master of Science: Nutrition, Department of Animal Science, Texas A&M University, College Station, Texas (1989).
C. Doctor of Philosophy: Nutrition, Department of Animal Science, Texas A&M University, College Station, Texas (1994).

EXPERIENCE
2017-Present: Professor, Department of Animal Science, Texas A&M University
2006-2017: Associate Professor, Department of Animal Science, Texas A&M University
2007-2010: Director, Center for Food Safety, Department of Animal Science, Texas A&M University
2005-2006: Research Associate Professor, Meat Science, Department of Animal Science, Texas A&M University
1997-2004: Executive Director, International HACCP Alliance
1992-1994: Director, Combined Graduate Degree - Dietetic Internship, Department of Animal Science, Texas A&M University
1992-1994: Lecturer, Nutrition Section, Department of Animal Science, Texas A&M University
1992-1994: Instructor, USDA’s Food Safety and Inspection Service Training Center
1991-1992: Lecturer, Nutrition Division, Department of Human Ecology, University of Texas, Austin.

PUBLICATIONS (2012-2017)
(Note name changed from Harris to Gehring in 2014)


V. **Service**

Societies and Associations

1. **American Meat Science Association**
   a. Scientific Information Committee, 2001 – present
   b. Industry/Extension Award Selection Committee, 2013 - present
   c. Director, 2007 - 2009
2. **Beef Industry Food Safety Council (BIFSCo)**
   a. Executive Committee, 2007 - 2012
4. **North American Meat Institute (formerly NAMA)**
   a. Food Safety/Regulatory, College of Experts, 2009 - present
   b. Educational Committee, 2000 – present
   c. Research Advisory Committee – beef subgroup, 2015 - present
5. **International Association of Food Protection (IAFP)**
   a. Facilitator, Validation Roundtable, IAFP 99th Annual Meeting, Anaheim, CA
Clare A. Gill

Professor
Department of Animal Science
Interim Executive Associate Dean, College of Agriculture and Life Sciences
979.847-9325
calore-gill@tamu.edu

EDUCATION:
Ph.D. 2001 Molecular Genetics, University of Adelaide, Australia
B.Biot. 1995 Biotechnology, Flinders University of South Australia, Australia

PROFESSIONAL EXPERIENCE:
2018 – present: Interim Executive Associate Dean; College of Agriculture and Life Sciences, Texas A&M University
2017 – 2018: Interim Head; Department of Agricultural Leadership, Education, and Communications, Texas A&M University
2013 – present: Professor of Animal Genomics; Department of Animal Science
2015 – 2017: Research Fellow – Division of Research; Texas A&M University
2013 – 2017: Faculty Ombuds Officer; Texas A&M University
2011 – 2014: Associate Vice President for Diversity; Texas A&M University
2007 – 2013: Associate Professor of Animal Genomics; Department of Animal Science, Texas A&M University
2003 – present: Member of the Interdisciplinary Faculty of Biotechnology, Texas A&M University
2002 – present: Member of the Interdisciplinary Faculty of Genetics, Texas A&M University
2001 – 2007: Assistant Professor of Animal Genomics; Department of Animal Science, Texas A&M University
2001 – present: Member of the Graduate Faculty, Texas A&M University
2000 – 2001: Associate Research Scientist; Department of Animal Science, Texas A&M University
1999 – 2000: Postdoctoral Fellow; Department of Animal Science, Texas A&M University
1995 – 1998: Graduate Student; University of Adelaide, South Australia, Australia.

HONORS AND AWARDS:
1995: AMGEN Australia prize for excellence in biotechnology research
1995: Flinders University Chancellor’s letter of commendation
1998 & 1999: Finalist in the Young Australian of the Year Awards: nominated for ‘The SA Water’ Science and Technology award for outstanding achievement
2009: Texas A&M Vice Chancellor’s Award in Excellence for Research (McGregor Bovine Genomics Team)
2011: ADVANCE Administrative Fellow
2014: Texas A&M Dean’s Outstanding Achievement Award for Excellence in Research

PROFESSIONAL ASSOCIATIONS:
American Society of Animal Science
International Society of Animal Genetics
Texas Genetics Society
American Association for the Advancement of Science
PUBLICATIONS (2014 – 2018):


Jason J. Gill

Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.458.9286
jason.gill@tamu.edu

Education
B.S., Environmental Sciences, Brock University, St. Catharines, Ontario, 1997
M.S., Biological Sciences, Brock University, St. Catharines, Ontario, 1999
Ph.D., Food Microbiology, University of Guelph, Guelph, Ontario, 2006

Positions and Honors

Positions and Employment
2000: Laboratory Technician, Agriculture and Agri-Food Canada, Southern Crop Protection and Food Research Centre, Vineland Station, ON
2006 – 2010: Postdoctoral Research Associate, Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX.
2010 – 2012: Program Director, Center for Phage Technology, Texas A&M University, College Station, TX.
2013 – present: Assistant Professor, Department of Animal Science, Texas A&M University, College Station, TX.

Other Experience and Professional Memberships
2001 – present Member, American Society for Microbiology
2013 Texas A&M/National Science Foundation of China, peer review panel
2013, 2014 NIH ODSC study section (IAR)
2016 – 2019 Chair-Elect, Division M, American Society for Microbiology
2016 Reviewer, Peer Reviewed Medical Research Program, CDMRP
2016 Reviewer, NIH/NIDA R41-R43 ad-hoc study section

Honors
2003-2005 Ontario Graduate Scholarship

RESEARCH
The viruses that infect bacteria — bacteriophages — are the most abundant form of life in the biosphere. Additionally, as one of the primary predators of bacteria, phages hold tremendous potential for practical use as target-specific antimicrobial agents, a practice commonly called phage therapy. I have been working with bacteriophages since 1997, when I was introduced to phage on a project involving the isolation, characterization and application of phages against the phytopathogenic bacterium Erwinia amylovora. I went on to conduct doctoral research on the use of phages against Staphylococcus aureus in cattle, completing one of the few modern placebo-controlled phage therapy clinical trials in naturally-infected subjects. This work also represented one of the few — if not the only — doctoral research projects on phage therapy in North America in the previous 40 years. During my time at Texas A&M University, as Program Director of the Center for Phage Technology and now as junior faculty in the Department of Animal Science, my
work has been dedicated to both basic and applied aspects of phage biology. My current faculty appointment also includes membership in the Center for Phage Technology, the only state-funded Center in the US devoted to phage research.


Contributions to Science

1. Phage therapy. Throughout my career I have had an interest in the use of phages as antibacterials, a practice termed phage therapy. Phages are one of the major natural predators of bacteria in nature, and their potential as antibacterials was first recognized when they were first discovered and studied in the pre-antibiotic era. As antibiotic resistance continues to loom as a significant public health crisis, new antibacterial solutions are needed and phages have been a subject of increasing interest in this area. My earlier work focused on proof-of-concept work to demonstrate the ability of phages to control bacterial infections. In 2006, we found that the well-known S. aureus phage K, while highly virulent in vitro, was unable to cure dairy cattle with naturally-acquired S. aureus mastitis. We showed that, among other factors, S. aureus strongly accumulates serum proteins on its surface that are able to inhibit phage attachment. A later project showed that phage could effectively reduce bacterial burden in a murine lung model of B. cenocepacia colonization. In the spring of 2016, I was involved in an emergency clinical intervention using phages to treat a patient with a disseminated Acinetobacter baumannii infection. Phages produced in my group were administered under an eIND obtained by the UC San Diego Medical Center and the patent made a full recovery; a manuscript detailing this case is currently in revision. These studies and others have led us to think more closely about how basic knowledge of the phage and host can allow prediction the efficacy of phage therapy.


2. **Phages for industrial or agricultural applications.** While phages often receive attention as a potential treatment for antibiotic resistant infections, phages may also be able to play a role in agricultural or industrial settings. The continued pressure to reduce antibiotic usage in animal agriculture has caused phages to become an attractive alternative for controlling bacterial populations in these systems. We have initiated projects to study the populations of phages infecting *Salmonella* in beef feedlots (publication below), and *S. aureus* in swine production environments (publications pending). *Salmonella* phages are common in beef feedlots, and can be recovered from samples with no culturable *Salmonella*; this work lays a foundation for future studies on the bioccontrol of *Salmonella* in beef. In industry, bacteria can present a nuisance by contaminating fermentative processes, or can be a benefit by producing value-added products from low-value feedstocks. In these collaborative projects I have helped explore the application of phage to reduce fermentation failures in ethanol production, and the ability of phage to release beneficial products of bacterial fermentation such as PHB plastic precursors and triacylglycerol for use in biodiesel production. This applied work also provides new avenues into basic aspects of phage biology: in searching for a phage capable of lysing the mycolata bacterium *Rhodococcus opacus* to release biolipid, we isolated a new lineage of Tectivirus that is able to infect actinomycetes.


3. **Phage genomics.** One of the most scientifically interesting challenges posed by phages is their diversity. Phages are a major component of what has been termed the biosphere’s “genetic dark matter”, and it is not unusual to sequence a new phage genome to find that >50% of its genes encode novel proteins. Sequencing of the phages used to treat *B. cenocepacia* infections in a murine lung model were found to be of an entirely new type, and also showed how apparently virulent phages may be cryptically temperate. This work also highlighted the distribution of DarB-like antirestriction proteins in bacteria, which has become the focus of a new project with its first publication to be submitted shortly. Sequencing of the *C. crescentus* phage phiCbK and its relatives again highlighted a novel phage type that is unrelated to other known phages. *C. crescentus* is a popular model organism for the study of cell cycle regulation and cell shape, and other groups are studying phage phiCbK to determine its means of adsorption. I am currently a Co-PI with Drs. Ry Young and James Hu on an NSF-funded project to develop an open-source community annotation portal and database specialized for phage genomics. Many phages are deposited into the public databases with only cursory annotations and even the paradigm phages such as lambda, T4, T5 and T7 have annotation issues as there is no clear “owner” for many of these records. The Galaxy-based annotation system under development will provide an open portal to accumulate and disseminate community expertise.


d. Electronic resource: The Center for Phage Technology Galaxy instance (https://cpt.tamu.edu/galaxy-pub/) is jointly administered by Jason Gill, James Hu and Ry Young. This is currently under development and supported by NSF grant ABI-1565146.

Complete list of published work (NCBI):

D. Additional Information: Research Support and/or Scholastic Performance

2017-2020 National Institutes of Health (NIAID), R33 AI121689-03
Development of therapeutic bacteriophages against carbapenemase-resistant Klebsiella pneumoniae.
Role: PI
This project is a continuation of the R21/R33 structured program to develop a therapeutic phage library to treat gut-derived sepsis.

2016-2020 National Science Foundation, ABI-1565146
Implementing Galaxy for Community-based Phage Genomics
Role: Co-PI
The goal of this project is to develop and deploy a Galaxy-based, community annotation system for phage genomes and an accompanying genomic database

2015-2018 National Institutes of Health (NIAID), R21 AI121689-01
Development of therapeutic bacteriophages against carbapenemase-resistant Klebsiella pneumoniae
Role: PI
The goal of this project is to isolate, characterize and evaluate phages for the treatment of gut overgrowth and sepsis caused by multidrug-resistant K. pneumoniae.

2015-2018 Bill and Melinda Gates Foundation
Phage Therapy in a Weaned Piglet Model of Enteropathy
Role: PI
The goal of this project is to develop a model of environmental enteropathy in weaned piglets, and conduct a pilot efficacy study for the treatment of pathogenic E. coli.

2015-2018 National Institutes of Health (NIAID), R21 AI113508-01A1
The Twort-like bacteriophages of Staphylococcus aureus: paradigm phages for novel therapeutics
Role: PI
The goal of this project is to develop genetic tools for the facile manipulation of the virulent Twort-like bacteriophages of S. aureus.
Ronald J. Gill

Professor and Extension Specialist
Texas A&M Agrilife Extension
Department of Animal Science
2471 TAMU, Kleberg. 133
College Station, TX 77843
(979) 845-3579

EDUCATION
PhD., Animal Science (Nutrition), Texas A&M University, 1984
M.S., Animal Science (Range Nutrition), Angelo State University, 1981
B.S., Animal Science (Business), Angelo State University, 1979

PROFESSIONAL EXPERIENCE
2008 to present  Associate Department Head and Program Leader for Extension Animal Science. Texas A&M AgriLife Extension Service. Texas A&M System, College Station, Texas
1984 – 2004  Professor and Extension Livestock Specialist, Texas Agricultural Extension Service, Texas A&M System, Dallas, Texas

PROFESSIONAL ACTIVITIES, AWARDS, AND HONORS
Awards and Recognition
– Superior Service Award (Educational Team), TAMU Beef Cattle Short Course. Texas A&M AgriLife Extension Service. 2015.
– Superior Service Award (Educational Team), Beef Boot Camp, Texas A&M Agrilife Extension Service. 2014.
– Texas A&M Vice Chancellor’s Award in Excellence for Industry, Agency, University, Association Partnership for the Texas Beef Quality Assurance Team. 2004
– Specialist of the Year in Texas Agriculture, Texas County Agricultural Agents Association. 2002.
– Texas A&M Vice Chancellor’s Award in Excellence, Extension Team Award (Standardized Performance Appraisal, Texas A&M University, 1994.

Membership in Professional Organizations
– National Cattleman’s Association
– Texas Cattle Feeders Association
– Texas & Southwestern Cattle Raisers Association
– Independent Cattleman’s Association

Committees and Committee Assignments
Texas A&M AgriLife Extension, Stiles Farm Manager Search Committee
Texas A&M University, Animal Science Department Head Search Committee
Texas A&M AgriLife Extension, Director Search Committee

**Program Unit & Department of Animal Science**

- Texas Beef Quality Producer Program. 2001 – present.
- Beef Cattle Short Course Planning Committee. 1984 – present.

**Texas A&M Agrilife Extension Service Administrative**

- Texas A&M AgriLife Extension, Programming Impact Committee. 2018

**Youth Education Efforts**

- Texas State 4-H Horse Show Management Team from 1984 to present
- State Horse Program Committee. 1984 to present
- Fort Worth Stock Show and Rodeo Youth Horse Judging Contest Superintendent. 1988 to present
- Fort Worth Stock Show and Rodeo, Beef Superintendents Challenge
- Served as a judge in the interview portion of the contest and content development for the Production Knowledge Quiz associated with this contest. 2007 – present
- San Antonio Livestock Exposition Beef Skillathon
- State Fair of Texas Superintendent of the Junior Heifer Show Superintendent from 1985 – 2008

**Industry Service**


**REFERRED JOURNAL PUBLICATIONS**


Daigle, C.L., A.J. Mathias, E.E. Ridge, R.J. Gill, T.A. Wickersham, J.E. Sawyer. PSIX-12 Meta-analysis of exercise programs implemented in the research and commercial environments that were designed to enhance Bos indicus influence cattle welfare upon entry to a feedlot. 2018. Journal of Animal Science 96(suppl_3):11-11


Abstracts


Texas A&M Agrilife Research Publications

Thesis and dissertation
**Extension publications**

Gill, R.J., Bevers, S., Pinchak, W.E. 2013. Evaluating Replacement Female Alternatives,  
Texas Adapted Genetic Strategies for Beef Cattle – Series. 2003  
Hammack, S. and R. Gill. III. Body Size & Milking Level. (E-188)  
Hammack, S. and R. Gill. X. Frame Score & Weight. (E-192)  
Davey Griffin
Professor and Extension Meat Specialist
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.3935
dgriff@tamu.edu

EDUCATION:
  B.S. (Animal Science), Texas A&M University, College Station, TX, 1979
  M.S. (Animal Science), Texas A&M University, College Station, TX, 1981
  Ph.D. (Animal Science), Texas A&M University, College Station, TX, 1989

EXPERIENCE
  2014-Present   Professor and Extension Meat Specialist, Texas A&M AgriLife Extension Service
  2006-Present   Executive Director, Texas Association of Meat Processors
  1997-2014     Associate Professor and Extension Meat Specialist, Texas A&M University System.
  1993-2015     Faculty Coordinator for the TAMU Intercollegiate Meat Judging Team,
  1990-1997     Assistant Professor and Extension Meat Specialist, Texas A&M University System.
  1980-1982     Oscar Mayer Corp., Madison, WI

PROFESSIONAL HONORS AND AWARDS:
  2018         American Meat Science Association Intercollegiate Meat Judging Meritorious Service Award
  2013         American Meat Science Association Superior Service Award
  2011         Harry L. Rudnick Educator of the Year award, North American Meat Processors Association (NAMP)
  2006         Texas Cooperative Extension, Superior Service Award (Dept. of Animal Science Extension Unit).
  2005         Texas Pork Producers Association Industry Service Award
  2004         Texas Cooperative Extension, Superior Service Award (Livestock Project Character Education Team).
  2001         American Meat Science Association Distinguished Extension-Industry Service Award
  1997         American Meat Science Association Achievement Award
  1996         COALS TAEX Family and Consumer Science Specialist Award for Effective Training (Food Protection Management Program)
  1996         COALS Vice Chancellor Award for Team Extension (Beef 706)
  1996         Texas Agricultural Extension Service Superior Service Team Award (Beef 101)
  1994         COALS Vice Chancellor Award for Team Research (Beef CARDS)
  1994         COALS Vice Chancellor Award for Team Extension (Ranch to Rail Program)
  1993         Texas Agricultural Extension Service Team Superior Service Award (Ranch to Rail Program)

PROFESSIONALISM AND SERVICE:
  2008-18    Industry-wide Cooperative Meat Identification Standards Committee (ICMISC)
  1993-18    San Antonio Livestock Show Junior Market Barrow Show Superintendent
  2016-18    San Antonio Livestock Show Meat Science Skillathon Superintendent
1990-18 Houston Livestock Show Junior Steer Carcass Show Assistant Superintendent
2005-18 Houston Livestock Show Youth Meat Judging Contest Superintendent
2014-18 Fort Worth Stock Show Youth Meat Judging Contest Superintendent
1991-18 FFA Multi-Area and State Meat Career Development Event Superintendent
2006-18 4-H National Meat Judging Contest Official Committee
2012 American Meat Science Association, Regional Director and President-Elect, Intercollegiate Meat Judging Coaches Association
2008 Nominee for AMSA President
1997 American Meat Science Association, Regional Director and President, Intercollegiate Meat Judging Coaches Association
1995 American Meat Science Association, President - Industry/Extension Group
1994 American Meat Science Association, Secretary - Industry/Extension Group

EXTENSION INITIATIVES:
Developed and coordinate nationally known Beef 101 workshop (30th year four times per year) – fee-based program
Developed and coordinate nationally known Pork 101 workshop (21st year) – fee-based program
Co-Developed and coordinate Creative Sausage Making workshop (6th year) – fee-based program
Co-coordinate Meat Science efforts on the Science of Barbecue, Including:
  - Barbecue Town Hall
  - Barbecue Summer Camp
  - Camp Brisket.
Coordinate industry sponsored workshops for various segments of the meat animal, retail and foodservice industries including Center of the Plate, Texas Chefs Seminar on Beef, Kroger Beef Boot Camps, international trade team programs, and many company-specific programs.
Conduct and deliver HACCP/food safety workshops and support for small and very small meat processors.
Develop and coordinate youth programs and contests on meat evaluation.
Serve as superintendent at numerous livestock show activities including swerving as the superintendent for the largest market barrow show in the U.S. for over 25 years.
Coordinate youth carcass show activities, including data and photograph collection and web-based dissemination.

TEACHING AND ACADEMIC INITIATIVES:
ANSC 680 – Applied Concepts of Meat Animal Myology co-lead instructor.
ANSC 317 – Meat Selection, Evaluation and Grading, lead instructor (2000-14)
Guest lecturer each semester in ANSC 317 (Meat Evaluation), ANSC 437 (Livestock Marketing), and ANSC 302 (Basic Beef Cattle Production).
Serve as committee member on numerous Meat Science Master’s and Ph.D. student advisory committees (28 MS, 3 MAG, 2 MED, 7 Ph.D. career)
Served as Faculty Coordinator for the Texas A&M University Intercollegiate Meat Judging Team (1992-2015).

RESEARCH INTERESTS:
Research areas include beef/pork cutability, quality/consistency, food safety, and value added.
Cooperate on a wide array of research projects involving beef, lamb and pork to aid in dissemination of impactful information to the Texas meat animal industry.
REFEREED JOURNAL PUBLICATIONS (Last 5 Years)


Thomas B. Hairgrove  
Texas A&M AgriLife Extension, Animal Science  
Phone: (979) 458-3216; Fax: (979) 845 6574; tbhairgrove@tamu.edu

EDUCATION
Ph.D. 2016, Ph.D. Texas A&M University, Animal Science  
Foreign Animal Disease Program 2012, Plum Island, New York  
Graduate Certification 2009, Veterinary Homeland Security. Purdue University  
Certification Program 1999, Beef Cattle Production Management. University of Nebraska  
Board Certification 1998 American Board of Veterinary Practitioners (Beef Cattle)  
DVM 1974, Texas A&M University  
B.S. 1973, Texas A&M University, Veterinary Science  
B.S. 1967, Texas A&M University, Animal Science

PROFESSIONAL EXPERIENCE
2016-Present Associate Professor and Extension Specialist, Department of Animal Science,  
Texas A&M AgriLife Extension Service  
2008-2016 Livestock and Food Animal Systems Coordinator, Texas A&M AgriLife Extension  
Service  
1976-2008 Owner Haskell/Knox Veterinary Clinics, Haskell, Texas  
1974-1976 Associate Veterinarian, Fort Stockton, Texas  
1971-1974 Student College of Veterinary Medicine Texas A&M University  
1967-1971 Corps of Engineers, U. S. Army

PROFESSIONAL ACTIVITIES
• 2001-2007 Beef Cattle Regent, American Board of Veterinary Practitioners  
• 2004-2013 Member National Board of Veterinary Medical Examiners  
• 1974-present Member American Veterinary Medical Association.  
• 1974-present Member Texas Veterinary Medical Association.  
• 1980-present Member American Association of Bovine Practitioners  
• 1980- Member Society for Theriogenology  
• 1984-present Member Academy of Veterinary Consultants  
• 2009-present Member and past president Association of Extension Veterinarians  
• 2011-2015-Member American Veterinary Medical Association: Steering Committee for FDA  
Policy on Veterinary Oversight of Antimicrobials

HONORS & AWARDS
• 2002 Veterinary Diagnostician of the Year, Texas A&M Veterinary Medical Diagnostic  
Laboratory  
• 2004 American Association of Bovine Practitioners, Merial Preventative Medicine Award  
• 2006 Outstanding Alumnus Award, Texas A&M College of Veterinary Medicine  
• 2012 Career Achievement Award, Texas Veterinary Medical Association  
• 2013 Vice Chancellors’s Award International Involvement (Team Award)  
• 2014 Specialist of the Year, Texas County Agricultural Agents Association  
• 2015 Superior Service Award Beef Cattle Shortcourse (Team Award)
GRANTS RECEIVED

1. Use of Non-invasive Near Infrared Reflectance Spectroscopy of bovine feces to optimize animal health in the management of tick infections
2. Bacteriophages reduce Shiga-Toxigenic Escherichia coli on beef cattle hide surfaces
3. Does dart gun administration of antibiotics cause changes in drug deposition and meat quality
4. American Association of Bovine Practitioners, vaccine development-Bovine Trichomoniasis
5. New Mexico Alert Program Syndromic Surveillance Program in Texas (Year 2)
6. New Mexico Alert Program Syndromic Surveillance Program in Texas (Year 1)
7. Seed Grant Vector-Borne Diseases (2 Years)
8. FAZD Tick-Borne Disease Grant
9. Pfizer Animal Health Seroprevalence of Bovine Anaplasmosis
10. NCBA Dairy Beef Quality Assurance

PUBLICATIONS


12. The NASPHV Animal Contact Compendium Committee: 2013. Kirk E. Smith, DVM, PhD, (Co-Chair), Minnesota Department of Health, 625 Robert St N, Saint Paul, MN 55155; John R. Dunn, DVM, PhD, (Co-Chair), Tennessee Department of Health, 425 5th Ave N, Nashville, TN 37243; Louisa Castrodale, DVM, Alaska Department of Health and Social Services, 3601 C St No. 540, Anchorage, AK 99503; Russell Daly, DVM, Department of Veterinary and Biomedical Sciences, College of Agriculture and Biological Sciences, South Dakota State University, Brookings, SD 57007; and Ron Wohrle, DVM, Washington State Department of Health, PO Box 47853, Olympia, WA 98504. Consultants to the Committee: Casey Barton Behravesh, MS, DVM, DrPH, CDC, 1600 Clifton Rd, Atlanta, GA 30333; Karen Beck, DVM, PhD, North Carolina Department of Agriculture and Consumer Services, 2 W Edenton St, Raleigh, NC 27601; Marla J. Calico, International Association of Fairs and Expositions, 3043 E Cairo, Springfield, MO 65802; Allan Hogue, DVM, USDA, 4700 River Rd, Riverdale Park, MD 20737; Christine Hahn, MD, Council of State and Territorial Epidemiologists, Idaho Division of Public Health, 450 W State St, Boise, ID 83720; Thomas Hairgrove, DVM, American Association of Extension Veterinarians, Kleberg Center, Room 133, 2471 TAMU, College Station, TX 77843; Thomas P. Meehan, DVM, Association of Zoos and Aquariums, 8403 Colesville Rd, Ste 710, Silver Spring, MD 20910; and Kendra Stauffer, DVM, AVMA Council on Public Health and Regulatory Veterinary Medicine, 1931 N Meacham Rd, Schaumburg, IL 60173. Compendium of measures to prevent disease associated with animals in public settings, 2013: National Association of state public health veterinarians’ animal contact compendium committee. Journal of the American Veterinary Medical Association Nov 1, Vol. 243, No. 9, Pages 1270-1288.


**Practice Information:**
I was in private practice for 34 years before joining Texas A&M AgriLife Extension. My practice was a rural mixed practice with emphasis on food animal medicine and surgery. Food animal practice was primarily beef cattle, (Stocker and Cow-Calf). I worked with commercial cow-calf producer, seedstock producers, and stocker/backgrounder operations in a five-county area of the Rolling Plains of Texas.
Daniel Scott Hale
Professor and Extension Meat Specialist
Department/Program Unit: Animal Science/740
Date of Initial Appointment: March 1, 1985
Date of Last Promotion: 1997 (Associate Professor to Professor)

Position Appointment
1985 - 2005  Extension: 100%
2005-2017  75% Extension/25% Research
2018 - 25% Research/25% Extension Meat Specialist/
       50% Extension Path to the Plate

Awards
- Texas A&M AgriLife Extension Superior Service Team Award, 2015
- Former Student Association Texas A&M University Distinguished Achievement Award-
  Extension, Service, Outreach, 2014
- Oklahoma State University Distinguished Advanced Graduate of Distinction, 2013
- Signal Service Award, American Meat Science Association, 2013
- Lead Technical Reviewer, American Meat Institute (AMI) Animal Handling Guidelines,
  2013, 2015
- Texas A&M AgriLife Extension Superior Service Unit Award, 2007
- Distinguished Service in the Pork Industry, Texas Pork Producers, 2005
- TAMUS Vice Chancellor of Agriculture Award for Team Research, Food Safety Team,
  2005
- Texas A&M AgriLife Extension Superior Service Specialist Award, 2004
- TAMUS Vice Chancellor of Agriculture Award for Extension Specialist, 2003
- TAMUS Vice Chancellor’s Award in Excellence Team Award (Beef 101), 2003
- American Meat Science Association Reciprocal Meat Conference, Chair, 2002
- American Meat Science Association Board of Directors, 2001-2002
- TAMUS Vice Chancellor of Agriculture Award in Excellence for Partnership – Beef 706,
  1997
- American Meat Science Association Distinguished Service in Extension/Industry Award,
  1996
- Texas AgriLife Extension Superior Service Team Award for Beef 101, 1996
- TAMUS Vice Chancellor of Agriculture Award in Excellence – Ranch to Rail Team, 1994
- Texas AgriLife Extension Superior Service Team Award for Ranch-to-Rail Program, 1993
• Progressive Farmer’s Magazine “Man of the Year Southwest Agriculture,” 1988
• Texas Beef Industry Council Distinguished Service Award, 1987

Professional Development and Association Leadership
• Host Committee for the 2017 American Meat Science Association Reciprocal Meat Conference
• Auditor Re-Certification Organization (PAACO), Inc., 2009-2018
• Texas Beef Council–Producer Education Committee Technical Advisor, 2002-2015
• Technical Advisor for PAACO for the American Meat Industry Foundation Animal Handling Guidelines, 2012
• Past-President, American Meat Science Association, 2007-2008
• President, American Meat Science Association, 2006-2007
• President-Elect, American Meat Science Association, 2005-2006
• Advisor, Student Organization of the American Meat Science Association, 2004-2006
• American Meat Science Association Reciprocal Meat National Conference, Chair, 2002
• American Meat Science Association Board of Directors, 2001-2002
• American Meat Science Association Past-President of the Extension and Industry Section, 1993
• American Meat Science Association President of the Extension and Industry Section, 1992
• American Meat Science Association Secretary of the Extension and Industry Section, 1991

Refereed Research Journal Articles, Website, Grants and Program Support
• Grants, User Fees, Sponsor Support – Over 3 Million Dollars over last 10 years
• Books - 3
• Book Chapters - 3
• Refereed Journal Article - 43

Extension Programs Emphasis
Hale interprets and delivers information on diet and health, food safety, livestock growth, animal welfare, livestock management, and meat science. His educational programs and resources include hands-on seminars and online programs that engage consumers, youth and 4-H members, health professionals, retailers, food service managers, packers, processors, and livestock producers across the Nation.

Summary of Key Extension Programs
Beef 706
Created in 1993 as a result of the National Beef Quality Audit, Beef 706 is a two-day educational program aimed at teaching cattle producers the importance of producing a more consistent
and high-quality beef product through a series of hands-on lessons. Since the start of the program, Beef 706 has trained approximately 3,500 cow-calf producers, feedlot managers and owners, and other industry personnel managing 3 million head of cattle on an annual basis. Approximately 95% of attendees state that, as a result of the Beef 706 program, they intend to make management changes in their operation aimed at improving food safety and beef quality. Through an economic impact analysis that was performed on the effectiveness of this program, it was estimated that from the programs conducted from 2006-2012, the cumulative increase in returns to the cattle industry is an estimated to be $17.5 million.

Beef Quality Assurance (Online)
Hale served on a team of Extension faculty that developed the Texas Beef Quality Assurance Program (BQA). The mission of the BQA Program is to promote management practices that enable cattle producers to improve beef quality and strengthen consumer confidence in beef as a safe, nutritious, wholesome food product. Hale developed the online training, which has been completed by 2,126 people who owned over 1,288,604 head of cattle. When asked if they thought these changes will save or make them more money, 73% of the respondents said that they either would make more money, save money, or both because of what they learned in this course. When asked how much they would make or save per head, respondents indicated $191.00 per head of cattle. It is estimated that the economic impact of the online portion of the BQA training is more than $25 million in return to the cattle industry.

Animal Welfare
Hale is a Professional Animal Auditor Certification Organization certified auditor and a technical reviewer for the American Meat Institute Foundation Animal Handling Guidelines. These guidelines underwent an extensive revision in 2012 and in 2017, and Hale was one of three national expert reviewers of this document. These guidelines are the foundation of every animal welfare audit that is conducted in the United States and is used worldwide. In 2013, he was the lead reviewer of the 2013 revisions to the guideline. Hale annually speaks at the American Meat Institutes National Animal Welfare Conference. He helps meat processors throughout Texas troubleshoot animal handling issues.

Beef 101 and Pork 101
Hale works with Dr. Davey Griffin to conduct the Beef 101 and Pork 101 programs. The Beef 101 program is held three times annually and Pork 101 once annually. These programs are directed at sales, marketing, communication and public relation specialists in beef trade associations and allied businesses, such as the American Meat Institute, National Cattlemen’s Beef Association, Ketchum Advertising and others. These people generally have exceptional communication skills but limited knowledge about the beef industry. Collectively, the program participants are responsible for millions of pounds of beef and pork sold annually and millions of dollars in Checkoff funding that is used for promotion, research and educational purposes.
Texas A&M Beef Cattle Short Course
Hale assists with the development and execution of portions of the Texas A&M Beef Cattle Short Course. The goal of the Beef Cattle Short Course is to bring together top beef cattle researchers, educators and industry leaders to address the most current issues, as well as to provide producers with cutting-edge information for use in their beef cattle operations. Approximately 1,500 people attend the annual program. Through an economic impact study, it is estimated that the cumulative benefits of the program to participants are estimated at $4.6 million in the last six years.

Beef Youth programs
The Texas Beef Council and Texas A&M AgriLife Extension developed a program to reach youth who have demonstrated a desire to pursue a career related to beef and beef production. This program introduces the industry’s future leaders to all aspects of beef production and its impact on consumers.

Texas 4-H Meat Judging Program
Hale established the Texas 4-H Meat Judging Program in Texas in 1986. Approximately 200 youth participate annually in the contests and trainings across the state. Over the last five years, a Texas team has won the National 4-H Meat Judging Championship. Dr. Hale’s responsibilities include developing aids for agents and leaders, assisting in conducting a clinic, coordinating seven district and state contests and helping in the training of the teams representing Texas at the national contests.

San Antonio Livestock Show Carcass Contests
Dr. Hale coordinates the pork, lamb, and goat carcass contests for the San Antonio Livestock Show and assists with the steer and commercial steer carcass contests. The information collected and disseminated teaches youth, agents, and parents about meat-related factors that are important in raising livestock.

Houston Livestock Show and Rodeo™ Carcass Contests
Dr. Hale coordinates the pork and goat carcass contests for the Houston Livestock Show and Rodeo™ and assists with the steer carcass contests. The information collected and disseminated teaches youth, agents, and parents about meat-related factors that are important in raising livestock.

4-H/FFA Houston Livestock Show and Rodeo™ Meat Judging Contest
Work with Davey Griffin to coordinate the HLSR Meat Judging Contest. Over 300 youth annually participate in this contest to learn about meat quality and evaluation principles and gain decision-making skills.

Lamb and Pork Youth Leadership Institutes
Coordinate the meat evaluation and fabrication portions of these two youth events. These programs attract about 30 youth who learn about the food side of the livestock industry.

Master Cattle Transporter Manual, DVD and Website
Led the development of a manual that teaches Beef Quality Assurance and handling principles to cattle transporters. Completed the 45-minute DVD that teaches pre-transit handling, cattle behavior, loading, truck considerations, driving, unloading, environment and biosecurity best practices. Most major beef processors use this training.

Foodservice and Chef Beef Quality Workshop
Annually conduct meat science trainings for SYSCO, US Foodservice, Standard Meat Company, and Lone Star. These companies are the top suppliers of meat to the U.S. foodservice industry. Along with the Texas Beef Council, also conduct meat science and beef trainings for chefs.

Texas and Southwestern Cattle Raisers Convention
Regularly speak on beef quality issues at the Research Committee meeting and the Cattlemen’s College event.

Trade Teams Training
In conjunction with the US Meat Export Federation and Texas Beef Council, Hale has conducted beef and pork trainings for trade teams from Japan, China, Russia, Central America, Mexico and the Caribbean. These teams represent multimillion dollar companies that come to the United States to learn about US beef. Though post-evaluations and actual sales receipts, it has been shown that these programs have resulted in the sale of millions of dollars of US meat.

Value Added School
Meat processors, retailers and foodservice operators from around the county attend the annual Value Added School – Meat and Poultry at Texas A&M University. The participants impact millions of dollars in processed and value added meat products.

Teaching and Student Development Efforts
Classroom Presentations
- ANSC 437 - Animal Welfare, Spring and Fall,
- ANSC 437 - Livestock Auction, Field Trip Spring and Fall,
- ANSC 437 - VAC Programs Demonstration, Spring and Fall,
- ANSC 302 – National Beef Quality Audit, Fall,
- ANSC 242 - Stress Impact on Cattle Growth Performance and Carcass Value,
- ANSC 402 – How to engage the media?
- ANSC 351/651 - Assistant Instructor

Meat Science Quiz Bowl Faculty Sponsor and Coordinator, 2nd place 2017 RMC
Online Texas A&M University Course Development and Maintenance
- ANSC 302. Basic Beef Cattle Production Instructor: Jason Cleere

Graduate Student Activities
- Chair and Co-Chair 4, Committee Member 48

1. Olson, Cameron; Carstens, Gordon; Herring, Andy; Hale, Daniel; Kayser, William Miller, Rhonda; Effects of feedlot receiving temperament on growth efficiency, feeding behavior, and carcass value in beef heifers, J. Anim. Sci 2019, (in external review)


**Industry Guides**


Jim Heird

Executive Professor
Glenn Blodgett Equine Chair
Coordinator, Texas A&M Equine Initiative
Thomas G. Hildebrand ’56 Equine Complex
3240 F&B Road
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jimheird@tamu.edu

Dr. Jim Heird is Executive Professor and Coordinator of the Equine Initiative and holder of the Glenn Blodgett Equine Chair at Texas A&M University. Immediately prior to Texas A&M, he was Director Of Teaching and Outreach for the Equine Sciences Program at Colorado State University. He also served as Director of the Colorado Agriculture and Rural Leadership program and as Chairman of the Management Committee of the Y Cross Ranch, a 50,000-acre ranch owned by Colorado State University and the University of Wyoming. He graduated from the University of Tennessee with a B.S in Animal Husbandry and an M.S in Animal Genetics. His Doctorate is in Equine Behavior from Texas Tech University.

His academic career began at North Carolina State University where he was their first extension horse specialist. He was a faculty member at Texas Tech University for 10 years and was at Colorado State University for 23 Years. At Colorado State University, he served in several leadership positions, including Associate Dean and Director Of Academic Programs, Interim Dean of Business, and for 2 1/2 Years, Interim Dean and Vice Provost for Agriculture and Outreach. He was faculty representative for athletics and served as Chair of the Western Athletic Conference Administrative Council.

Dr. Heird has an international reputation in the field of equine sciences. He has lectured on numerous topics both nationally and internationally. He has been a successful judging team coach, teacher, researcher, extension specialist and administrator. His research in the areas of equine conformation and equine behavior is recognized throughout the Equine Industry. He has presented numerous lectures in the U.S and internationally on equine behavior, conformation, selection, judging, genetics and issues facing the horse industry.

Dr. Heird has received many honors, including the United States Department of Agriculture Honor Award For Excellence, the Distinguished Service Award from Southern University and A&M College, the Colorado State University Distinguished Service to Diversity Award, the Distinguished Alumnus Award from the Department of Animal Science at the University of Tennessee, the Outstanding Leadership Award from the National Horse Judging Team Coaches Association and the Outstanding Advisor Award for Texas Tech University. In 2005, he was named an Outstanding Alumnus of the University Of Tennessee. In 2007, he was named an Honorary Vice President of the Quarter Horse Association of Uruguay. In 2009, he was named Horseman of the Year by the Colorado Horse Council. In 2014, he was named the first recipient of the Glenn Blodgett Equine Chair at Texas A&M. In 2016, he was named an honorary Vice-President and Life Member of the Argentina Quarter Horse Association. In 2017, he was inducted...
into the Texas Cowboy Hall Of Fame. He also became a Director of the National Advisory Board for the National Collegiate Equestrian Association and a Director of the Texas Racing Hall of Fame in 2017.

Dr. Heird has combined his academic career with leadership and successful competition in the horse industry. He has trained world champion youth riders and shown world champion horses. He served as Chair of the National Wild Horse and Burro Commission. He was an American Quarter Horse Judge from 1976 until 2017. In that capacity, he judged 13 world championship shows for AQHA and 15 national shows in multiple countries. He has judged the Road To The Horse Colt Starting Competition multiple times. He has lectured in numerous national and international judges’ seminars for many breeds. He is a past Chairman of AQHA’s Judges Committee, the AQHA Versatility Ranch Horse Sub-Committee, the AQHA Show Committee and Show Council and the International Committee. He also served as the first Chairperson of the AQHA Welfare Commission. He was an AQHA Director from Colorado prior to moving to Texas where he is presently an AQHA Director from Texas. In 2015, he was elected to serve as a member of the AQHA Executive Committee and in March of 2018 became President of the AQHA, the World’s Largest Breed Association.

Executive Professor and Coordinator of the Equine Initiative Glenn Blodgett Equine Chair Holder at Texas A&M University, Sept 2012—present
1. Led discussion to revise curriculum and create an undergraduate certificate in Equine Sciences
2. Developed and secured approval for a new Masters in Equine Industry and Management – 2 Cohorts – 8 students since 2015.
3. Formed a broad-based industry development committee
4. Coordinated a planning committee to develop plans for a new Equine Complex at Texas A&M
5. Initiated a development program to build phase I of projects that will total $80 million
6. Matched a $2.5 million gift to fund the Dr. Glenn Blodgett Endowed Chair for Equine. A total gift of $5 million
7. Supervised the move of the AQHA Ranch Horse Versatility World Championship and the AQHA Mounted Shooting World Championship to Texas at the Houston Livestock Show and Rodeo
8. Elected as an American Quarter Horse Association director from Texas
9. Appointed to Chair the AQHA Animal Welfare Task Force
10. Secured funding to direct a series of international seminars in South America (Uruguay, Argentina, Paraguay)
11. Have secured ~ $45 million in gifts and in-kind contributions for the Equine Initiative
12. Initiated and directed the construction of the $32 million Thomas G Hildebrand DVM ’56 Equine Complex. Project developed with support external to the University
13. Elected to the Executive Committee of the American Quarter Horse Association 2015-2019
14. Elected to the Texas Cowboy Hall of Fame 2016
15. Elected President of the American Quarter Horse Association, the largest breed association in the world - 2018
16. Started a campaign to raise $25 million for an Equine Orthopedic Research and Wellness Center.

**Non-Academic/Other-Academic Administrative Experience**

**2018 – 2019**  
President of the American Quarter Horse Association – the largest breed association in the world.

**2017-Present**  
Appointed as a Board Member of the National Collegiate Equestrian Association Advisory Board.

**2015-Present**  
Elected as a **Member** of the AQHA Executive Committee

**2014-Present**  
Appointed as an **Ex Officio Director** of the Houston Livestock Show and Rodeo

**2013-Present**  
Chair of the International Committee for AQHA

**2011-2014**  
Chair of the AQHA Animal Welfare Committee

**2007-2016**  
Superintendent of the AQHA Ranch Horse Versatility World Championship Show held in Denver and Houston

**FUNDED PROPOSALS FOR COLLEGE ADVANCEMENT:**


**PUBLIC SERVICE & NATIONAL COMMITTEE ASSIGNMENTS:**

- **President**, AQHA
- **Member**, AQHA Executive Committee
- **Member**, National Collegiate Equestrian Association Advisory Board
- **Chair**, AQHA International Committee
- **Chair** of the Tennessee Walking Horse Celebration Animal Welfare Commission to eliminate the soring of the Tennessee Walking Horse
- **Chair**, AQHA Animal Welfare Commission, (2011-2014)

**HONORS RECEIVED:**

- Elected to the Texas Cowboy Hall of Fame
- Named as First Recipient of the Glenn Blodgett Equine Chair, Texas A&M
- Introduction Speaker at the Welfare Forum at the 2013 AQHA Convention
- Keynote Speaker at the 2018 AQHA Convention
- Lifetime member and Honorary Vice President – Argentine Quarter Horse Association
Andy D. Herring

John K. Riggs ’41 Beef Cattle Professor
Department of Animal Science
Texas A&M University
College Station, Texas 77843-2471
979.845.9284
andy.herring@tamu.edu

Education:
B.S., Animal Science, Tarleton State University, 1988
M.S., Animal Breeding, Texas A&M University, 1991
Ph.D., Genetics, Texas A&M University, 1994

Professional Positions:
- Professor (2015-present), Associate Professor (2002-2015), John K. Riggs ’41 Beef Cattle Professorship Holder (2002-present), Department of Animal Science, Texas A&M University
- Associate Professor (2000 - 2002), Assistant Professor (1994-2000), Department of Animal and Food Sciences, Texas Tech University
- Graduate Teaching and Research Assistant (1988-1994), Dept. of Animal Science, Texas A&M University

Research and Teaching Emphasis Areas:
Beef cattle production and management, genetic improvement for cattle and small ruminant production systems, utilization of genetic and management information for improved beef value chains

Selected Honors and Awards:
- Outstanding Alumnus - Animal Science & Veterinary Technology 2018, College of Agricultural and Environmental Sciences, Tarleton State University.
- 2009 Texas A&M University Vice Chancellor’s Award in Excellence for Graduate Teaching
- 2009 Texas A&M University Vice Chancellor’s Award in Excellence for Research Team “McGregor Bovine Genomics Team”
- Outstanding Young Animal Scientist – Education (2000), Southern Region, American Society of Animal Science
- 1998 National Assoc. Colleges & Teachers of Agriculture (NACTA) National Teacher Fellow Award

Recent International Activities:
- Visiting Professor in Department of Animal and Wildlife Sciences, University of Pretoria, Republic of South Africa (September-December 2016) through TAMU Faculty Development Leave
- Advisory Team for training and development of Dominican Republic beef and dairy industries targeting U.S. equivalency status (2016-present) – focus on production aspects of value chain
Courses Taught:
Animal Breeding & Genetics, Beef Cattle Production, Quantitative Genetics, Statistics (Biometry)

Graduate Students Trained (as Chair or Co-Chair) by Degree:
Master of Agriculture – 12; Master of Science – 31; Doctor of Philosophy - 16

Research Groups and Consortia:
- USDA-NIFA Multistate project WERA-1: Beef cattle breeding in the Western Region
- USDA-NIFA Multistate project S1064: Genetic improvement of adaptation and reproduction to enhance sustainability of cow-calf production in the Southern United States

Selected Recent Peer-Reviewed Publications (from career total of 57):


**Recent Peer Reviewed Conference Proceedings:**


**Recent Book Chapters (career total of 14):**


**Textbooks:**

**Recent Editor Reviewed Conference Proceedings (career total of 26):**


4. **Herring, A.D.** 2015. Concepts and research results on crossbreeding. Federation of Cattle Producing Associations of the Philippines annual national meeting. (Feb 6-9, 2015), Bacolod, Philippines.
5. **Herring, A.D.** 2015. Non-typical genetic effects and implications for intensive systems. Dr. Kenneth & Caroline McDonald Eng Foundation Symposium (Innovations in Intensive Beef Cow Production, Care and Management) September 17-18, 2015 Oklahoma City, OK.


**Selected Recent Scientific Abstracts (career total of 103):**


**General Biographical Statement:**

I was raised on my family's sheep and cattle ranch in west central Texas, which my family has owned and operated since 1886. I have a passion for teaching as well as production-oriented research, and I am passionate about educating and working with livestock producers to make the most-informed decisions regarding their profitability and sustainability.
Chelsie Jo Huseman

Extension Program Specialist
Department of Animal Science
Texas A&M AgriLife Extension
College Station, TX  77843-2471
979.845.1562
chelsie.huseman@tamu.edu

Education

Texas A&M University                 College Station, TX
Doctor of Philosophy, Animal Science Dec. 2018
Dissertation Title: Skeletal Adaptation to Whole Body Vibration in Growing Pigs and Yearling Horses

West Texas A&M University       Canyon, TX
Master of Science, Animal Science  2008
Thesis Title: The Effect of Insemination Site on Grade of Uterine Flushes and Embryo Recovery in Reproductively Abnormal Mares

Bachelor of Science, Equine Industry and Business  2006
Minor in Animal Science
Outstanding Equine Industry and Business Senior

Employment

Texas A&M AgriLife Extension        College Station, TX
Horse Program Specialist I                      March 2017-current

Program Development and Implementation
46th Annual TAMU Summer Horsemanship School Program - Director
• Organized stalling, riding sessions, tryouts and travel for SHS student instructors (15 tried out, 6 hired).
• Complete reconstruction of school program to include improved and interactive teaching strategies and offering of focused discipline teaching for 16 schools. Provided support, resources, and leadership for 16 host locations.
• Requested and obtained sponsorship/donations from Anderson Bean Boot Company, Thomas Moore Feeds, Catalena Hatters and private sponsors.
• Developed and conducted a SHS Instructor Reunion May 2018 at Texas A&M to reunite all former instructors.
• Developed an International SHS Program, in collaboration with Texas A&M equine faculty Dr. Jessica Leatherwood. First school was in 2018 in Beijing, China in collaboration with Unbridled China. Secured two grants totaling $12,000 to contribute to program.
• Developed new participant survey to implement in 2018 to better assess learning, engagement, and overall enjoyment of school participants.
Multi-District 4-H and Area FFA Horse Judging Contest - Co-Director
- Organized facility, horse and riders, contest officials and reasons takers, and patterns

State 4-H Roundup - Co-Director
Horse Judging Contest
- Organized horse and riders, officials, patterns, and packets for counties
Horse Educational Presentations
- Organized judges, packets for contestants and gave lead to contest

State 4-H Horse Show – Co-Manager
- Review/revision of Texas 4-H Horse Show Rules and Regulations
- Supervision of horse validation process
- Supervision of horse show entry process
- Ordering and organization of awards
- Revision of show schedule
- Creation of class patterns
- Organization and supervision of completion of program book
- Organization and management of ring stewards
- Managed payment requests for awards, supplies, and hired staff
- Developed bid requests and identify potential candidates for two major factions of the show: facility bid (2019-2023) and photographer (2018)

Aggiefest Horse Judging Workshop – Co-Director
- Organized facility, horse and riders, patterns, registration, and educational speakers including Texas A&M Animal Science faculty and industry professionals
- Presenter for specific disciplines

Technology Advancements: Social Media, Online Course Development, Mobile Application – Co-Manager
Texas 4-H Horse Facebook page
- Managed 1-2 weekly posts
- Developed and/or gave oversight on five video posts
- Collaborated with other Facebook page directors to share our posts,
Texas Horse Help App
- Development of app that went live January 2018
- Designed to help Texas horse owners to easily identify resources in their area including horse health services, professionals, facilities, events, and their County Extension office and agent
- Secured external funding of app for 2018 and 2019

Online Horse Judging Course
- Created new Online Horse Judging Course offered through eXtension campus on a fee basis
- Upgraded video content to HD to significantly improve visual quality

Texas A&M Horse Extension Internship - Co-Director
- Designed and implemented summer internship program for Texas A&M undergraduate students to create awareness of extension career opportunities and develop extension related skills such as communication, time management, and development and implementation of meaningful programs
• Facilitated intern’s involvement with and attendance of State 4-H Roundup, TAMU Horse Judging Camps, Summer Horsemanship Schools, Texas 4-H Equine Ambassador annual training camp, and Texas State 4-H Horse Show

Workshops
• TAMU AgriLife Pony Club Workshop Series, Director, College Station, TX  
  January 20th, February 24th, and April 14th
• TAMU Horse Judging Camps, Presenter, College Station, TX
• MCFA Colt Project Clinic, Presenter, Conroe, TX
• Equine Reproduction Management Short Course, Presenter, College Station, TX
• Red River Equine Summit, Presenter, Decatur, TX
• 4-H Vet Science Workshop, Presenter, College Station, TX

Other
• District 6 Horse Show, Assistant, Fort Stockton, TX
• Texas 4-H Equine Ambassador annual training camp, Assistant, Gainesville, TX
• NCHA Intercollegiate Horse Judging Contest, Assistant, Fort Worth, TX
• 4x4 Chute Out Texas State Fair, Assistant, Fort Worth, TX
• Introduction to Equine and Horse Judging for Jersey Village FFA, Coordinator/Presenter for all three presentations, College Station, TX

Support for Extension Activities
Grants, contracts, gifts and in-kind support total: $65,890
  Grants Funded


  C. Huseman. Neuhaus-Shepardson Faculty Development Grant. **$2,000.** FY2018.

Sponsorships/Donations
  Summer Horsemanship School Instructor support **$2,890**
  State 4-H Horse Show **$41,000**

Fee-based Programming total: **$131,039**
  • Multi-District 4-H and Area FFA Horse Judging Contest $2,880
  • Summer Horsemanship Schools $16,500
  • Aggiefest Horse Judging Workshop $1,809
  • Summer Horse Judging Camps $31,500
  • Online Horse Judging Course $1,200
  • State 4-H Horse Show validations $19,770
  • State 4-H Horse Show entries $57,380
Coordination and Cooperation

- Equine Science Society Symposium – Workshop: RSNC Ranch Sorting Kids Camp, Presenter, Minneapolis, MN
- Fort Worth Stock Show and Rodeo, Assistant Superintendent, Horse Judging Contest, 150 4-H youth competed
- Houston Livestock Show & Rodeo, Assistant Superintendent, Horse Judging Contest, Katy, TX, 800 4-H and FFA youth competed
- Hi-Pro Feeds 2018 State 4-H Horse Show Incentive Program - Scholarship program for state show participants with a potential total payout of $14,250
- TAMU Department of Animal Science support of Saddle Up for College at State 4-H Horse Show (sponsorship of $800)
- TAMU Equine Sciences, Guest Lecturer, College Station, TX
- Collaboration with Unbridled China for SHS International program, Beijing, China
- Texas Quarter Horse Association, Novice Horse Show, Assistant, Bryan, TX
- National Reining Horse Association, Collegiate Horse Judging Contest, Assistant, Oklahoma City, OK
- AgriLife Extension Bookstore
  EAN-016: Using Artificial Lighting to Elicit Estrus in Mares Chelsie Huseman, Dr. Martha Vogelsang Texas A&M Department of Animal Science, Dr. Jennifer Zoller Texas A&M AgriLife Extension

Professionalism and Service

- TAMU Horseman’s Association, Co-Advisor with Dr. Martha Vogelsang
- American Registry of Professional Animal Scientists - Professional Animal Scientist (PAS)
- Interscholastic Equestrian Association show, Judge, College Station, TX
- American Quarter Horse Association, Member
- Equine Science Society, Member

Texas A&M University

Horsemanship Graduate Assistant
Graduate Teaching Consultant
  Instructional coach and peer mentor to graduate teaching assistants across TAMU campus for the Center of Teaching Excellence

Horsemanship’s Association Graduate Advisor
Horsemanship’s Association Co-Advisor
Graduate Teaching Assistant

Houston Community College

Adjunct Instructor & Horse Judging Coach

Northeastern Oklahoma A&M College

Agriculture Instructor & Equestrian Team Coach
  Responsible for development and coordination of the equine program and curriculum for the Equine and Ranch Management degree.
NANCY HUGHES ING

Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.862.2790
ning@cvm.tamu.edu

EDUCATION:
1979 B.S. (with Honors), Zoology
University of Florida
1984 Doctor of Veterinary Medicine
University of Florida
1988 Ph.D., Biochemistry and Molecular Biology
University of Florida
1988-1992 Postdoctoral Research Fellow, Cell Biology
Baylor College of Medicine

EXPERIENCE:
1986-1988 Research Assistant
Department of Animal Science, University of Missouri
1988-1992 Postdoctoral Research Fellow
Department of Cell Biology, Baylor College of Medicine
1992-1998 Assistant Professor
Department of Animal Science, Texas A&M University
1992-present Adjunct Appointment
Department of Veterinary Integrative Biosciences, Texas A&M University
1998-2016 Associate Professor
Department of Animal Science, Texas A&M University
2016-present Professor
Department of Animal Science, Texas A&M University

TEACHING
Courses Taught – Undergraduate – In last ten years
ANSC 210 – Companion Animal Science (3 cr.) [Course developed by N. Ing]
Introduction to the physiology, husbandry and career opportunities with companion animals.
ANSC 481 – Seminar (1 cr.)
Review of literature and research problems related to the livestock and food industries; preparation of a technical report including an oral presentation supported by a written technical paper.

ANSC 291/485 – Canine Socialization and Training (1 cr.) [Course developed by C. Daigle and N. Ing]
Learn to socialize and enhance the environment of research dogs on campus.

Courses Taught – Graduate – In last ten years
ANSC/GENE 626 – Gene Expression (2 cr.) [Course developed by N. Ing]
An introductory lecture/laboratory course in RNA analysis.
ANSC 681 – Graduate Seminar (1 cr.) Preparation and delivery of scientific presentations.
# RESEARCH

## Career Summary Table: Grants and Contracts Awarded

<table>
<thead>
<tr>
<th>Type and Role</th>
<th>Total Awarded</th>
<th>Ing Share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Grants Awarded</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI</td>
<td>$1,230,966</td>
<td>$1,064,180</td>
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<tr>
<td>Co-PI</td>
<td>$494,624</td>
<td>$48,000</td>
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<tr>
<td>Total (PI and Co-PI)</td>
<td>$1,725,590</td>
<td>$1,112,180</td>
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<tr>
<td><strong>Internal Grants Awarded</strong></td>
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<td></td>
</tr>
<tr>
<td>PI</td>
<td>$142,440</td>
<td>$142,440</td>
</tr>
<tr>
<td>Co-PI</td>
<td>$766,116</td>
<td>$313,333</td>
</tr>
<tr>
<td>Total (PI and Co-PI)</td>
<td>$908,556</td>
<td>$455,773</td>
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<tr>
<td><strong>Total Amount Awarded</strong></td>
<td>$2,634,146</td>
<td>$1,567,953</td>
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## Grants Awarded – In last ten years

<table>
<thead>
<tr>
<th>Grant Type</th>
<th>Date</th>
<th>Funding Agency</th>
<th>Competitive Grant</th>
<th>Role</th>
<th>Title of Grant</th>
<th>Award Amount</th>
<th>Candidate Amount</th>
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</thead>
<tbody>
<tr>
<td>Industry</td>
<td>2008</td>
<td>American Quarter Horse Foundation</td>
<td>Y PI</td>
<td>Harmful Effects of Glucocorticoids on Stallion Reproduction: Gene Expression Studies Leading to a New Clinical Assay for Fertility Prediction</td>
<td>$37,784</td>
<td>$37,784</td>
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</tr>
<tr>
<td>Federal</td>
<td>2015</td>
<td>USDA National Institute of Food and Agriculture</td>
<td>Y Co-PI</td>
<td>Queen supersEDURE in honey bees: How do agricultural pesticides impair fertility in queens and drones?</td>
<td>$454,970</td>
<td>$40,500</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>2018</td>
<td>Select Sires</td>
<td>Y PI</td>
<td>Biomarkers of bull fertility: microRNAs in sperm from bulls with high and low fertility</td>
<td>$10,458</td>
<td>$10,458</td>
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</tr>
<tr>
<td>State</td>
<td>2008</td>
<td>TAMU Link Endowment</td>
<td>Y PI</td>
<td>Gene Expression in Sperm: Window to Testis Function</td>
<td>$37,740</td>
<td>$37,740</td>
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</tr>
<tr>
<td>State</td>
<td>2010</td>
<td>TAMU Link Endowment</td>
<td>Y PI</td>
<td>Defining a ‘Fertile Fingerprint’ of RNAs in Stallion Sperm</td>
<td>$43,000</td>
<td>$43,000</td>
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</tr>
<tr>
<td>State</td>
<td>2011</td>
<td>TAMU Whole Systems Genomic Institute</td>
<td>Y PI</td>
<td>Molecular Fingerprint of Leiomyomas in Dogs: A Match for Those in Women?</td>
<td>$10,000</td>
<td>$10,000</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>2011</td>
<td>Texas A&amp;M AgriLife</td>
<td>Y PI</td>
<td>Defining a Fertile Fingerprint of RNAs in Stallion Sperm</td>
<td>$35,000</td>
<td>$35,000</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>2017</td>
<td>TAMU PESCA</td>
<td>Y Co-PI</td>
<td>Characterizing the RNAs and DNA concentration in eggs as a useful tool to assess honey bee (Apis mellifera) queen fertility</td>
<td>$25,000</td>
<td>$8,333</td>
<td></td>
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<tr>
<td>State</td>
<td>2018</td>
<td>TAMU T3 – Triads for Transformation</td>
<td>Y Co-PI</td>
<td>Novel non-invasive method of evaluating the equine gastrointestinal tract</td>
<td>$30,000</td>
<td>$10,000</td>
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</table>
Summary Table: Publications and Invited Presentations at Scientific Meetings.

<table>
<thead>
<tr>
<th>Publication Type</th>
<th>Career Total</th>
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</thead>
<tbody>
<tr>
<td>Refereed Publications</td>
<td>52</td>
</tr>
<tr>
<td>Reviewed Publications</td>
<td>4</td>
</tr>
<tr>
<td>Book Chapters</td>
<td>11</td>
</tr>
<tr>
<td>Scientific Abstracts</td>
<td>51</td>
</tr>
<tr>
<td>Invited Presentations at Meetings (Total):</td>
<td>13</td>
</tr>
<tr>
<td>International</td>
<td>8</td>
</tr>
<tr>
<td>National</td>
<td>2</td>
</tr>
<tr>
<td>State/Local</td>
<td>3</td>
</tr>
</tbody>
</table>

**REFEREED JOURNAL ARTICLES** (* denotes graduate student; Impact Factors and Citations from Web of Science, July 2015) – In the last ten years


**BOOK CHAPTERS** – In the last ten years


Biographical Sketch

CURRICULUM VITAE

Name: Jenny Jennings
Title: Assistant Professor – Beef Nutrition
Address: 6500 W. Amarillo Blvd. Amarillo, TX 79106
Telephone: 806-677-5613       Fax: 806-677-5644
E-mail: Jenny.Jennings@ag.tamu.edu

A. Education/Training

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missouri State University</td>
<td>BS</td>
<td>2000-2004</td>
<td>Animal Science</td>
</tr>
<tr>
<td>University of Arkansas</td>
<td>MS</td>
<td>2004-2006</td>
<td>Animal Science</td>
</tr>
<tr>
<td>South Dakota State University</td>
<td>PhD</td>
<td>2006-2009</td>
<td>Animal Science</td>
</tr>
</tbody>
</table>

B. Positions and Employment

Assistant Professor: October 2013-Present
100% Research
Employer: Texas A&M AgriLife Research
Amarillo, TX

Research Manager for Ruminant Nutrition:
October 2009-October 2013
Employer: Alltech, Inc.
Brookings, SD

Research Assistant:
August 2006 – October 2009
Employer: South Dakota State University
Brookings, SD

C. Awards and Honors

2013 Outstanding Young Alumni Award – University of Arkansas
2010 ASAS Young Scholar

D. Professional Experience

Research Mentorship:
- Postdoctoral Research Associates:
  Cathy Haviland – July 2018 to present
  Holland Dougherty – April 2018 to November 2018
  Kendall Samuelson – January 2017 to August 2017

- Graduate Students (Committee Chair):
  Caleb Lockard – WTAMU – PhD; anticipated graduation 2022
  Ashlynn Schlochtermeier – WTAMU – MS; graduated December 2017
  Wes Gentry – WTAMU – MS; graduated May 2016
  Caleb Weiss – WTAMU – MS; graduated August 2016
  Casey Brauer – WTAMU – MS; graduated December 2014

- Graduate Students (Committee Member):
  Dexter Tomczak – WTAMU – PhD; anticipated graduation August 2019
  Emily Kaufman – WTAMU – MS; graduated May 2017
  Ashlee Adams – WTAMU – MS; graduated May 2017
  Samantha Foos – WTAMU – MS; graduated December 2016
Lee-Anne Walter – WTAMU – PhD; graduated May 2015
- Provide feedlot experience to West Texas A&M University undergraduate students through employment at the Texas A&M AgriLife Research Feedlot, 2013-present

**Ad-hoc Journal Reviewer:**
- Journal of Animal Science, 2014-present
- Professional Animal Scientist, 2014-present
- Canadian Journal of Animal Science, 2015

**Grant Review Panels:**
- Foundation for Food and Agriculture Research, 2018
- Canadian Beef Cattle Research Council, 2017
- Internal TAMU Seed Grants, 2017

**Professional Societies, Committees and Advisory Boards:**
- Panhandle Livestock Professionals, 2016-present
  - PLP Advisory Board, 2017-present
- West Texas A&M Feedlot Advisory Board, 2016-present
- West Texas A&M Institutional Animal Care and Use Committee, 2016-present
- Texas A&M AgriLife Research Safety Committee, 2014-present
  - Oversight of annual chemical waste pickup, 2015-present
- United States Round Table for Sustainable Beef, 2015-2017
- American Registry of Professional Animal Scientists, 2013-present
- National Cattlemen’s Beef Association, 2010-present
- Masters of Beef Advocacy, 2010-present
  - Plains Nutrition Council, 2009-present
  - Second Vice President, 2018
- American Society of Animal Science, 2004-present
  - Ruminant Nutrition Program Committee Chair ASAS National Meeting, 2017
  - Ruminant Nutrition Program Committee Member JAM, 2016
- Sigma Alpha Alumni Association, 2004-present
- Sigma Alpha Advisor – South Dakota State University, 2012-2013

**LIST OF PUBLICATIONS**

**Publications:**
Tomczak, D.J., K.L. Samuelson, **J.S. Jennings**, and J.T. Richeson. Oral hydration therapy affects health and performance of high-risk, newly received feedlot cattle. Prof. Anim. Sci. – Accepted


Biographical Sketch


Biographical Sketch


Abstracts:

Jennings J. S., C. L. Lockard, and T. E. Lawrence. Effect of corn stalk inclusion rate on performance and rumination behavior in beef steers. 2019 Midwest ASAS Meeting, Omaha, NE.

Park R. M., R. Bova, J. S. Jennings and C. L. Daigle Environment enrichment reduces aggression and stereotypic behaviors in feedlot steers. 2019 Southern Section ASAS Meeting, Oklahoma City, OK.


Christopher Kerth

Associate Professor
Department of Animal Science
Texas A&M University
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Education
B.S., Animal Science & Industry, Kansas State University, 1993
M.S., Animal Science, Texas Tech University, 1995
Ph.D., Animal Science, Texas Tech University, 1999

Positions and Employment
1999 to 2004   Assistant Professor, Animal and Dairy Sciences Department, Auburn University, Auburn, AL.
2004 – 2010   Associate Professor, Animal Sciences Department, Auburn University, Auburn, AL.
2010 to Present:  Associate Professor, Animal Science Department, Texas A&M University, College Station, TX

Honors/Awards
-Associate Editor, Handbook of Meat, Poultry, & Seafood Quality Textbook, 1st and 2nd Ed., 2007, 2012
-PI/Co-PI on over $6.1 million in grants, contracts, and in-house funding since 1999; $4.5 million since 2010
-Author of 51 peer-reviewed articles, 68 abstracts, and 17 popular or invited articles
-Cumulative student course evaluation score of 4.7 out of 5.0 for more than 30 classes taught in 18 years
-Mentor (current/past committee member) to 65 grad students since 1999; 30 as committee chair/co-chair
-Seat on the Texas A&M University Faculty Senate, 2015-2018
-Member of the Texas A&M University Faculty Senate Budget Information Committee, 2015-2018
-Fulbright Scholar Visiting Scientist for Uruguay Instituto Nacional de Investigacion Agropecuaria, 2008-09
-Founder and faculty advisor to Auburn Meat Science Association, 2000
-Director (and co-designer) of the Auburn University Meat Lab and Demonstration Kitchen, 2004-2010
-American Meat Science Association Achievement Award, 2007
-American Meat Science Association Outstanding Teaching Award, 2009

Experience/Professional Memberships
- Associate Editor – Handbook of Meat, Poultry, & Seafood Quality 1st and 2nd Ed. (2007, 2012)
- Editor and author of four chapters – The Science of Meat Quality 1st Ed. (2014)
- Journal of Animal Science Editorial Board (2003-05)
- Member National Cattlemen’s Beef Association (NCBA)
- Member American Meat Science Association (AMSA)
- Member American Society of Animal Scientists (ASAS)
- AMSA Emeritus Membership Committee
- Manuscript Reviewer
  - Journal of Food Science
  - Journal of Animal Science
  - Meat and Muscle Biology
RESEARCH

I have developed a nationally- and internationally-renowned program in meat and food flavor chemistry. For the past six years, my research program has been centered on the chemistry of flavor in meat and food products as measured by the chemical composition of aromas that we find in these products. This is a relatively new area of research in my field, so it has been imperative that I be able to describe how flavor chemistry has been determined in other food products over the past 30 years. My efforts have resulted in a very successful research program focused on the development of flavor chemistry profiles of meat products, coffee, and spirits. As a member of the Texas A&M Mass Spec Core, I have been able to build my lab with equipment like GC/MS/Olfactory, and most recently have received a grant for over $400,000 to invest in a UHPLC/QTOF, which will enhance my research program and expand my capability to conduct metabolomics analyses of meat and food products. Furthermore, I have established collaborations with other researchers, not only at Texas A&M but also other institutions including Montana State, Kansas State, Texas Tech, University of Georgia, Colorado State, Penn State, Montana State, Oregon State, and even NASA. These collaborations have enabled me to link biochemical traits with consumer acceptability which allows us to develop a chemical fingerprint of flavor and aromas. These institutions come to my lab as I am uniquely qualified, particularly with the addition of metabolomics, to conduct these biochemical tests that no other lab in the country does in the field of meat science. Future work in this area includes funded support with the World Coffee Research Foundation (formerly a part of the TAMU Borlaug Institute for International Agriculture), Specialty Coffee Association of America and other food and beverage products, including wine, spirits, and sorghum bran. I am an integral member of the newly formed Center for Coffee Research and Education at Texas A&M and will be helping build this Center as the place to go for coffee product research and education, particularly in coffee-producing countries like Costa Rica and Guatemala.

As the maintenance of quality in food and beverages remains critical to major food industries, it is evident that I have the opportunity to directly impact its continued success with the results of my research. My work has resulted in over $5.4 million in grant dollars since 2010, with most of this funding coming in the form of industry grants to study the impact of flavor on beef. I am confident that this research is sustainable for the foreseeable future. As a result of this work, the National Cattlemen’s Beef Association has identified flavor as a top priority for research and marketing of beef products, and my work continues in this area. A major focus is as a part of a collaboration that conducts nationwide consumer studies to determine the impact of flavor on consumer acceptability of beef and beef products.

My efforts in flavor chemistry expand on the work that I did earlier in my career where I established a well-known reputation as an expert in livestock finishing systems and their impact on beef quality, particularly the effects of finishing cattle on forage systems as a method for improving and expanding markets in beef products. This research was recognized internationally, as it took me to Uruguay for three months as the recipient of a Fulbright Senior Visiting Scientist to study the beef industry in Uruguay and compare and contrast it to finishing systems in the U.S. and especially in the southern United States. More recently, I have established a working relationship with faculty at Massey University in New Zealand to support research in finishing systems for small and large ruminants to further the education of one of my graduate students. I will work collaboratively with Massey University to develop a Ph.D. program for this student, which has already included her visiting New Zealand and also her applying for a Fulbright award to study there.

My research has been recognized by invited talks regionally, nationally, and internationally. My focus in flavor chemistry is central to the targeted research requested by the National Cattlemen’s Beef Association in which studies are requested and funded without competition from other universities. Recently, a book chapter on flavor chemistry was commissioned to be written by me from one of the leading meat scientists in the country. Articles in popular media including MeatingPlace have been requested to be written by me as further evidence of the impact of my research and expertise in flavor chemistry. Finally, my research has been instrumental in the development of coffee flavor as evidenced by my involvement as the sole flavor chemist involved in research by the World Coffee Research Foundation in identifying the key flavor components in coffee varieties harvested and sent from all over the world to my lab for analysis. These data will be central to the development of a library of aroma chemical compounds attributed to different varieties of coffee from all over the world. I believe that my research in flavor chemistry will continue to be instrumental in describing flavor and aroma technology well into the future.
TEACHING

Instruction is an essential element of my academic career as illustrated by the fact that I have been the instructor of record/lead instructor for 12 different courses over the past 18 years. Teaching has allowed me to directly impact, to date, more than 1,000 undergraduate and graduate students in Animal Science as well as non-majors. Considering a typical class size of 20-25, I believe that my impact has been greater than average, as I work very hard to get to know my students. One of my strengths in teaching is identifying the needs of students for not only my courses, but for their overall education. I have developed courses in Animal Statistics and Animal Record Keeping to be able to instill a practical knowledge of managing and analyzing data from animal and meat production with great success.

Evaluating teaching success is multifaceted. One evaluator that is most helpful, I believe, is my students’ performance on quizzes and exams. I gauge my effectiveness in teaching the material by observing how students perform on exams and quizzes, which enables me to quickly determine if I have successfully taught the material covered or if enhancements are needed. I am always seeking adjustments to my teaching approach to ensure that my students completely understand the concepts before them. Additionally, I use course evaluations as a tool to enhance their classroom experience by encouraging students to include comments on the evaluation, noting areas that work well or need improvement. I value their feedback and use it to make necessary adjustments to enhance my courses. Finally, I use course evaluation scores to assess myself as an instructor and continuously strive to receive scores at or above the departmental average, which I have consistently done every semester and is indicative of my teaching effectiveness.

One of the most important criteria that I use to determine the impact of my undergraduate teaching program is my ability to recruit graduate students (particularly M.S. students) from resident undergraduates. I feel very strongly that a true measure of an undergraduate instructor’s impact is the ability to retain the best students from within the resident undergraduate population. I currently teach a variety of courses including Senior and Graduate Seminar, Advanced Meat Science, and Applied Animal Record Keeping, which allows me to interact with a very diverse student population. I measure the success of my graduate teaching program not only by the impact that I have on my students, but more importantly, the impact that my graduated students have on industry and the academic world. Having former graduate students who are now faculty members, directors of research and development, teachers, and scientists and seeing their impact is a great source of personal pride.

Perhaps the most rewarding experience in my teaching career to date has been to serve as Associate Editor for the “Handbook of Meat, Poultry, and Seafood Quality” (1st and 2nd editions) and to serve as Editor for “The Science of Meat Quality” textbook, of which I also wrote four chapters. My vision for “The Science of Meat Quality” was to develop a text whereby the average lay person or student could first learn about the theory related to the development of meat quality and then also about basic laboratory techniques necessary to measure the most basic meat quality traits. These texts have allowed me to impact students across the country and worldwide, reaching out in a way that I would not have been able to do otherwise.

Selected Peer-reviewed Publications (Selected from 51 peer-reviewed publications)

### Section D – Research Support

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### Teaching

#### Summary Table: Courses Taught

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<th>Undergraduate Courses</th>
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<th>Mean # of students/class</th>
<th>Student Eval (out of 5)</th>
<th>Department Mean Eval</th>
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### Graduate Students Awarded Degrees

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</table>
G. Cliff Lamb

Professor and Head  
Department of Animal Science  
Texas A&M University  
College Station, TX 77843-2471  
979.845.1543  
gclamb@tamu.edu

Education  
B.S., Animal Science, Middle TN state University, 1992  
M.S., Reproductive Physiology, Kansas State University, 1996  
Ph.D., Reproductive Physiology, Kansas State University, 1998

Positions and Honors

Positions and Employment:

<table>
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<th>Position</th>
<th>Institution</th>
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<td>Professor and Head</td>
<td>Texas A&amp;M University, College Station</td>
<td>2017-present</td>
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<tr>
<td>UF Research Foundation Professor</td>
<td>University of Florida, Marianna</td>
<td>2014-2017</td>
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<td>Professor and Assistant Director</td>
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<td>Associate Professor</td>
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<td>Associate Professor</td>
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<td>Assistant Professor</td>
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<td>Graduate Research Assistant</td>
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</table>

Professional Memberships and Honors:

Dallas Townsend Extension Professional Enhancement Award (2015)  
Florida Cattlemen’s Association Researcher of the Year (2015)  
Florida Association of County Agricultural Agents Outstanding State Specialist (2014)  
UFRF Professor (2014-2016)  
USDA-NIFA Partnership Award for Multistate Efforts (2013)  
LEAD21 Fellow (2011-2012)  
Excellence in Sustainable Agriculture Award – FL Assoc. of County Agric. Agents (2011)  
Excellence in Sustainable Agriculture Award – National Assoc. of County Agric. Agents (2011)  
Graduate Student Mentor of the Year – University of Florida Graduate Student Assoc. (2011)  
Early Career Achievement Award – American Society of Animal Science (2009)  
American Society of Animal Science – Midwest Section Outstanding Young Extension Specialist Award (2007)  
Minnesota State Cattlemen’s Association Outstanding Service Award (2006)  
Minnesota Angus Association Award of Appreciation (2004)  
American Embryo Transfer Association (2003 - present)  
American Registry of Professional Animal Scientists (2002 - present)  
American Dairy Science Association (1999 - present)  
International Embryo Transfer Society (1999 - present)  
National Cattlemen’s Beef Association (1998 - present)
American Society of Animal Science (1995 - present)

**Selected Peer-Reviewed Publications** (List 2013 to present of 109 total)


178 Abstracts Presented at Scientific Meetings (1998-2018)
130 Experiment Station Reports, Extension and Popular Press Articles (1998-2018)
Jessica Leatherwood

Assistant Professor
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Texas A&M University
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leatherwood@tamu.edu

Education:
B.S., Animal Science, Texas A&M University, 2007
M.S., Animal Science (Equine Nutrition), Texas A&M University, 2009
Ph.D., Animal Science (Equine Nutrition), Texas A&M University, 2013

Positions and Employment
1/2013 - 9/2016 Assistant Professor of Animal Science, Sam Houston State University
9/2016 - Assistant Professor of Animal Science, Texas A&M University

Other Experience and Professional Memberships
2013 - Member, Equine Science Society
2013 - Member, American Society of Animal Science
2015 - Member, Southern Section of the American Society of Animal Science
2015 - International Committee Member, American Quarter Horse Association

Selected Honors
2009 Equine Science Society Graduate Student Competition (1st Place, Exercise Phys)
2011 Equine Science Society Graduate Student Competition (1st Place, Exercise Phys)
2011 Association of Former Students Excellence in Teaching (Animal Science)
2011 Ronnie L. Edwards Graduate Teaching Award (Department of Animal Science)
2013 American Quarter Horse Association, Young Investigator Award
2014 North American Colleges and Teachers of Agriculture, Teaching Award of Merit
2015 Sam Houston State University, Excellence in Research Award
2017 National Collegiate Equestrian Association, Distinguished Alumni - Teaching

I am an Assistant Professor of Animal Science at Texas A&M University. The current objectives for my program in equine nutrition are cohesive, with each goal building upon the completion and success of another. My area of scholastic focus has been evaluating the joint health of young performance horses. Over the past 5 years, my laboratory has identified biomarkers of cartilage synthesis and degradation that detect the early onset of degenerative joint disease. I have produced refereed publications (Journal of Animal Science) describing the use of a minimally invasive intra-articular lipopolysaccharide injection to be used as a model to induce inflammation and cartilage turnover. These results have a significant relevance to the health and well-being of all horses, regardless of breed or discipline that may be entering into performance training. Therefore, identifying relative changes in articular cartilage over time can have a large economic impact on the equine industry. Recently, my laboratory has begun evaluating alterations within the extracellular matrix of articulating joints and the impact of maternal nutrition on extracellular matrix constituents in neonatal foals. While research success can be measured by the amount of funding received and publications accepted, recognition and respect of an active program can be hard to measure. I have been successful in obtaining both internal and external sources of competitive funding. My peers have often commented that my proposed research is scientifically sound and appropriate to the hypothesis. Extramural
funding from industry has often resulted in additional projects. Corporations are now requesting research proposals from my lab. My expertise in equine nutrition and strength as a collaborative researcher has led to multiple proposals and projects in many areas of emphasis. Because of this cohesive group, I have trained several graduate students who have successful careers in industry and academia.

Selected Publications in Refereed Journals (2012-2018)


Ongoing Research Support
Principal Investigator: J. Leatherwood; Agency: American Quarter Horse Foundation ($72,534.00)
Type: Competitive Grant; Period: 10/01/2018 – 9/30/2019
Percent Effort: 20%
Project title: Effects of aquatic conditioning on cartilage and bone metabolism in young horses.
The major goals of this project are to (1) demonstrate the effects of differing conditioning programs (aquatic vs. non-aquatic) on joint inflammation, cartilage metabolism, and bone mineralization as well as (2) determine the influence of early forced exercise and type of exercise on serum and synovial fluid biomarkers of young horses. These samples will provide insights as to the effects of conditioning (aquatic vs. non-aquatic) on joint inflammation and cartilage/bone turnover.

Principal Investigator: J. Leatherwood; Agency: Cargill, Inc. ($48,468.00)
Type: Sponsored Research; Period: 8/01/2017 – 10/30/2018
Percent Effort: 20%
Project Title: Nutrient Utilization in Horses
The major goals of this project is to investigate how diet fortification may influence voluntary intake of mature horses using a dual-marker system, and determine the utility of ultrasonography to evaluate the accuracy of subjective measures of body composition in horses, as well as, evaluate the effect of diet fortification on performance variables in mature horses.

Principal Investigator: S.H. White; Co-PI: J.L. Leatherwood; Agency: Diamond V Mills, Inc. ($125,028.00)
Type: Sponsored Research; Period: 2/01/2017 – 12/31/2018
Percent Effort: 10%
Project Title: Influence of XPC™ on inflammation of young horses.
The major goal of this project is to determine the potential for dietary supplementation of XPC™, a yeast fermentation product to mitigate inflammation and cartilage degradation in young horses challenged with intra-articular lipopolysaccharide.

Principal Investigator: Carey M. Satterfield; Co-PI: J. Leatherwood; Agency: American Quarter Horse Foundation ($20,000)
Type: Competitive Grant; Period: 10/01/2017 – 10/30/2018
Percent Effort: 5%
Title: Effect of maternal overnutrition on skeletal muscle fiber development and metabolism in the foal
The major goal of this project is to determine the effects of maternal overnutrition on foal development and metabolism of key skeletal muscles. Specific aims include the effects of maternal overnutrition on (1) muscle fiber size, (2) fiber type in muscles used for propulsion and support, (3) abnormalities in insulin signaling explaining previously observed alterations in glucose and insulin kinetics as it relates to athletic performance and metabolic disease.

Completed Research Support (2017-Present)
Principal Investigator: J. Leatherwood; Agency: Zinpro Corporation ($63,629.28)
Type: Sponsored Research; Period: 8/01/2016 – 12/31/2017
Project Title: Evaluation of dietary organic trace mineral supplementation on markers of joint inflammation and metabolism in young horses challenged with lipopolysaccharide.
The study objective was to evaluate the influence of dietary trace mineral source on joint inflammation and cartilage metabolism in young horses by measuring the production of synovial biomarkers in response to an intra-articular lipopolysaccharide (LPS) challenge.

Principal Investigator: J. Leatherwood; Agency: Muenster Milling ($19,768.91)
Type: Sponsored Research; Period: 1/06/2017 to 12/15/2017
Project title: Influence of extruded feed processing on apparent digestion in mature geldings
The major goal of this project was to determine the influence of feed processing (extruded vs. pelleted) on intake and digestion of diets fed to mature geldings.
Principal Investigator: J. Leatherwood; Agency: Wellmark International ($22,573.19)
Type: Sponsored Research; Period: 3/1/2017 - 10/30/2017
Project Title: Efficacy of Equine Fly Sprays Applied to Pastured Horses Exposed to Endemic Populations of Biting and Nuisance Flies
Paige Linne

Lecturer
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.458.7556
plinne@tamu.edu

Education:  Masters, Equine Industry Mgmt., Texas A&M University, 2017
B.S., Animal Science, Texas A&M University, 2015

Professional Interests:
- Equestrian sport and coaching
- Leadership
- Equine science teaching
- Student development

Current Classes and Roles:
- ANSC 211, Equine Industry & Careers Prep
- Advisor, Texas A&M Stock Horse Team (established)
- Assistant Instructor, ANSC 311
- Advisor, Texas A&M IHSA Team (in progress)
- Equine Certificate Internships

Experience:
- Texas A&M University, Department of Animal Science
  Lecturer, September 2018 – Present
- Equine Educational Contests
  Preparer & Facilitator, 2016 - Present
  Develop & organize testing materials (written tests, ID Stations, hands on, speech topics). Help conduct & judge San Antonio Horse Skillathon and Fort Worth Equine IQ Contests.
- University of Alabama
  Equestrian Coach and Instructor, June 2017 – August 2018
  Western IHSA team year 1 development and coaching. Kinesiology Horseback Riding class Instructor. Equine Industry/Business Minor curriculum development. IACUC compliance, program strategy, facility/animal management.
- American Quarter Horse Association
  International Horsemanship Clinician, Summer 2017
- Texas A&M Animal Science
  Graduate Student Class Instructor, Spring 2017
• Masters Project – Case Study, NCAA and Club Sport Dynamics, Spring 2017
• National Collegiate Equestrian Association, Young Alumni Award, 2017
• Texas A&M Stock Horse Team Coach, August 2015 – May 2017
• Aggie Horse Fair Event, December 2016
  Inaugural fair style event open to public designed to bridge gap between horse industry and everyday person, organized with EQIM graduate student cohort.
• National Collegiate Equestrian Association
  Intern, Summer 2016
  Work with director, NCAA coaches and administrators to further growth of equestrian sport at multiple universities, explore fundraising/grant opportunities, revise marketing and promotion materials.
• Time To Ride Collegiate Challenge Event, Spring 2016
  Challenge between TAMU horse organizations to introduce newcomers to equine industry under formal Time To Ride and American Horse Council format. Meet-a-horse classroom visits and public booths.
• Texas A&M NCAA Women’s Equestrian Team Member, 2011 - 2015
CHARLES R. LONG

Professor
Department of Animal Science
Resident Director of Research
Texas A&M AgriLife Research and Extension Center
1710 N. FM 3053
Overton, TX 75684
903.834.6191
c-long@tamu.edu

EDUCATION:
B.S., Animal Science, Louisiana State University, 1966
Ph.D., Animal Breeding, Texas A&M University, 1972

PRESENT POSITION:
Resident Director of Research and Professor, Texas A&M AgriLife Research, Texas A&M AgriLife Research and Extension Center, Overton, Texas and Professor (tenured), Texas A&M University Department of Animal Science. Appointed July 1, 1982.

PREVIOUS EMPLOYMENT:
November 1973 through June 1982: Associate Professor, Department of Animal Science, Texas A&M University and Texas Agricultural Experiment Station. Research and teaching responsibilities including leadership of TAES project H-1936 "Evaluation of Hybrid Systems for Total Efficiency of Beef Production" at the McGregor and College Station locations, cooperation and consultation with researchers working in various disciplines on projects relating to livestock breeding and production; teaching two graduate courses in quantitative genetics and direction of graduate students in animal breeding and livestock production; as well as specific Animal Science departmental responsibilities.

ACCOMPLISHMENTS:
Dr. Long conducted and published pioneer research in systems analysis of beef cattle production and the evaluation of selection alternatives and mating plans on the basis of total efficiency of production. He has published estimates of heterosis and breed effects on economically important characters of beef cattle. Dr. Long supervised and conducted a major research beef cattle crossbreeding project which yielded and published estimates of genetic parameters for beef cattle lifetime traits. He also collaborated with several colleagues to develop a system-based decision aid model for the Texas Department of Criminal Justice Agriculture Division. As Resident Director of Research at Overton for the past 30 years, he has provided the fiscal, managerial and scientific guidance and support for outstanding multidiscipline research contributing to scientific discoveries and technology development to support Texas agriculture in the areas of horticulture, forages and beef cattle. In addition to duties at Overton, Dr. Long has completed numerous specific assignments for the Director’s Office in several areas, e.g., strategic planning, beef cattle research, administrative issues, etc.

OVERTON CENTER PERFORMANCE:
The Texas A&M AgriLife Research faculty and staff of the Overton Center are talented, dedicated and productive. Dr. Long has been their supervisor since July 1, 1982. Listed below are specific examples of
their performance during that time which hopefully has aided them to accomplish their personal and professional goals.

- Research faculty at Overton have published numerous technical publications, abstracts and presentations annually as well as produced plant cultivar releases. Since 1986, this faculty has published 468 refereed publications, an average of 14.6 per year.
- Impacts of Texas A&M AgriLife Research at Overton have been numerous and significant for the past 51 years and include variety and cultivar releases, improved management technology and technology transfer to stakeholders in East Texas, Texas and the southeastern U.S.
- Teaching has been an integral part of research programs with undergraduate interns and graduate students. Degrees based on Overton research number 107 MS and 77 PhD graduates. Undergraduate interns number more than 60.
- Performance of faculty and support staff has been recognized by several entities. Since 1987, TAES Overton personnel have received 20 departmental awards, 46 Vice-Chancellor of Agriculture Awards in Excellence or other TAMU System recognition, 25 national society or university awards and 21 state, regional or local awards; a total of 112 awards, 9 of which were team awards.
- All 7 long-term research faculty members at Overton (3 are retired) have been named Texas A&M System Regents Fellows.

**LOCAL ACTIVITIES:**
- East Texas State Fair Board of Directors, 2006-2012.
- Build East Texas (BET) organization Executive Committee, 1990-2018.

**REGIONAL AND NATIONAL ACTIVITIES:**
- Southern Section, American Society of Animal Science (SS): Secretary-Treasurer-Elect, 1985; Secretary-Treasurer, 1986; President-Elect, 1987; President, 1988.
- Southern Association of Agricultural Scientists (SAAS) Board of Directors, 1987-89.
- Committees of ASAS and SAAS: SS Executive Committee, 1985-89; SAAS Meeting Location Selection Committee, 1986-87; SS Extension Award Committee, 1986-87 and 1987-88; SS Distinguished Service Award Committee, Chairman, 1987-88; ASAS Publications Committee, 1987-88; ASAS Animal Management Award Committee, Chairman 1987-88; SAAS President's Award Criteria Committee, Chairman, 1988-89.
- Agricultural Advisory Board, Texas Department of Corrections, 1988 to 2004.
- American Registry of Professional Animal Scientists, Secretary, 1993 to 1996.
- American College of Animal Genetics, ARPAS, Charter Diplomate, 1995-present.

**HONORS AND RECOGNITION:**
- Texas A&M University Agriculture Program Vice-Chancellor’s Award in Excellence for Administration, 1994.
- Overton-New London Area Chamber of Commerce 1995 Outstanding Citizen of the Year.
- Texas A&M University Agriculture Program Vice-Chancellor’s Award in Excellence for Extension Team (Pasture and Livestock Management Workshop for Novices Team), 2004.
- Build East Texas organization Award of Excellence in Agricultural Research and Extension, 2017.
SELECTED REFEREED PUBLICATIONS: Publications include 60 refereed publications, 171 technical publications and 103 abstracts.

Rhonda K. Miller

Professor and Texas A&M AgriLife Research Faculty Fellow
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
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rmiller@tamu.edu

EDUCATION
Ph.D. Colorado State University, Fort Collins, Colorado and Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, Nebraska 1983
Major: Animal Science/Meat Science Concentration
Supervisors: H.R. Cross, J.D. Crouse and J.D. Tatum
M.S. Colorado State University, Fort Collins, Colorado 1982
Major: Animal Science/Meat Science Concentration
Thesis: Accuracy of USDA yield grades for beef.
Supervisors: J.D. Tatum and R.A. Bowling
B.S. Colorado State University, Fort Collins, Colorado 1978
Major: Agricultural Journalism

EMPLOYMENT HISTORY
2003 to 2006 Chair, Intercollegiate Graduate Faculty of Food Science, Texas A&M University
1999 to present Professor, Department of Animal Science, Texas A&M University
1993 to 1999 Associate Professor, Department of Animal Science, Texas A&M University,
1988 to 1993 Assistant Professor, Department of Animal Science, Texas A&M University,
1983 to 1988 Director of Research and Development, Monfort of Colorado, Inc., Greeley, CO

TEACHING HIGHLIGHTS (average career 4.77 out of 5 teaching evaluation; departmental 4.62 for the same semesters)
Trained 2 Post Doctorial Associates, 7 Ph.D. students, and 56 M.S. students
Taught graduate level meat science class 30 semesters to over 320 students
Taught undergraduate/graduate class in sensory science 11 semesters to over 135 students
Taught undergraduate senior level meat science capstone class 21 semesters to over 300 students

RESEARCH HIGHLIGHTS
The research conducted at Texas A&M University has examined the pre- and post-harvest factors that impact beef and pork flavor, tenderness, juiciness, quality and composition. Selected research impacts:
• Development and validation of the Beef Lexicon
• Genetic evaluation of carcass and tenderness characteristics of steers and heifers from ARI ranches
• Relationship between animal temperament, live animal performance and eating behavior on beef carcass characteristics and beef tenderness
• Documentation of pork quality in the US retail meat case in the Pork Quality Benchmark Study
• Use of sorghum bran as a natural antioxidant in meat and poultry products
• Relationship between sensory attributes in the Beef Flavor Lexicon, volatile chemical compounds and consumer preference for heavy- and light-beef eating consumers; millennial and non-millennial consumers, and pork, poultry and beef consumers
• Determination of pork quality factors impacting consumer preferences – The Pork Quality Consumer Benchmark Study
• Co-Editor for the 3rd Edition of the AMSA Cookery and Sensory Guidelines for Red Meat
• Factors impacting descriptive and consumer sensory evaluation of ground beef
• Determination of prediction equations for consumer liking of beef whole muscle cuts and ground beef using different cooking methods, USDA quality grades and degree of doneness
• Responsible for the Sensory Testing Facility within the Department of Animals Science. This facility has an Expert Meat Descriptive Attribute Sensory Panel and an Expert Flavor/Texture Descriptive Attribute Sensory Panel. Consumer sensory testing also is conducted. The facility serves as support for RK Miller and for faculty members in the Department of Animal Science, multiple departments at Texas A&M University, and multiple institutions across the US.

PUBLICATIONS – Selected Refereed Journal Articles (132 career total; h-index = 47)


Selected Abstracts and Invited Papers at Scientific Meetings 2012 to present (177 career total)


Proceedings and Final Reports 84 career total

Books or chapters 7 total
PROFESSIONAL MEMBERSHIPS
Alpha Zeta
American Society of Animal Science (ASAS)
American Meat Science Association (AMSA)
American Society of Testing Materials (ASTM) – Member of Committee E18 – Sensory Evaluation
Gamma Sigma Delta
Institute of Food Technologist – Muscle Foods and Sensory Division, Alamo Section
Phi Tau Sigma
W3177 Regional Project for Expanding Markets for Red Meat

PROFESSIONAL OFFICES, COMMITTEE ASSIGNMENTS AND SERVICE ACTIVITIES
Served On over 100 departmental, college, national committees and as journal/grant reviewer
2017 President of the American Meat Science Association
Received 11 College or National Award Recognitions

Educational/Extension Presentations
Beef 101 – 2 to 3 programs per year since 1989
Pork 101 – 1 program per year since 1998
Poultry 201 – 1 program per year since 2010
Beef 706 –3 to 4 programs per year since 1995

CONTRACTS AND GRANTS
Total grants = $14.28 million with approximately $4.7 attributes to RK Miller laboratory.
Grant sources are mainly commodity and industry grants, USDA SBIR or USDA grants.
WESLEY OSBURN

Associate Professor
Associate Department Head for Academic Programs
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
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osburnw@tamu.edu

EDUCATION
Ph.D. Animal Science, Meat Science Discipline, University of Nebraska-Lincoln, May 1996
Dissertation Research: Improving the Functionality of Recovered Connective Tissue Proteins
M.S. Animal Science, Meat Science Discipline, Texas A&M University, May 1992
Thesis Research: Utilization of Konjac Flour as Low Fat Substitute in Prerigor, Fresh and Cured and Smoked Pork and Lamb Sausages
B.S. Agricultural Education, Texas A&M University, December 1981
Received Texas Teacher Certification with a specialization in Meats Processing

EXPERIENCE
Current Position/Assignment: Associate Professor, Texas A&M University, Department of Animal Science, Meat Science: Teaching (30%), Research (20%)
Department Administrative Appointment: Associate Head Academic Programs (50%)
Former Position/Assignment: Assistant/Associate Professor, Michigan State University. Jointly appointed between the Departments of Animal Science (75%) and Food Science and Human Nutrition (25%). Teaching appointment (60%); research appointment (40%)

Jan 2012-Present            Texas A&M University
                          Associate Professor
July 2016-present        Texas A&M University
                          Associate Head, Academic Programs
                          Senior Advisor to the Deputy Chief of Staff of Training of the Iraqi Armed Forces.
                          Project leader of the Iraqi Doctrine Development Working Group
2004-Oct 2009            Texas A&M University
                          Associate Professor
1996-2004                Michigan State University
                          Assistant Professor (1996-2003); Associate Professor (2003-04)
1992-96                  University of Nebraska-Lincoln
                          Graduate Research and Teaching Assistant, Department of Animal Science
1989-92                  Texas A&M University
                          Graduate Research and Teaching Assistant, Department of Animal Science
                          Assistant Instructor, USDA-FSIS Training Facility, College Station, TX

TEACHING AND ACADEMIC ADVISING RESPONSIBILITIES
Teaching Interests: Carcass evaluation/fabrication, value added processed meat manufacturing, food safety (HACCP), total quality management, team building/problem solving; ethical issues in animal agriculture.
Teaching Impact: Providing innovative instruction for undergraduate/graduate students for development
of critical thinking and decision-making skills, efficient transfer of scientific knowledge for practical problem-solving to address meat/food safety, quality and ethical issues impacting the meat and poultry industries.

Texas A&M University  2004-09; 2012-Present

Michigan State University  1996-2004
- Instructor for ANS/FSC 320(Muscle Foods, FSC 433 (Muscle Foods Processing), and ANS 490-007 (HACCP for Animal Agriculture Systems); Co-instructor for ANS 401 (Ethical Issues in Animal Agriculture), FSC 420 (Quality Assurance) and FSC 860 (Research Techniques in Food Processing)

MENTORING ACTIVITIES
Texas A&M University
2012-present
- Mentor graduate students: MAg (3), MSc (2), PhD (2) as chair/co-chair

2016-present
- Associate Head Academic Programs. Responsible for overseeing undergraduate and graduate programs in Animal Science. Advise undergraduate and graduate students as required.
- Coach for Maroon and White Leadership Fellows program. 2004-2009
- Mentored graduate students: MSc (3), PhD (1) as chair/co-chair

Michigan State University
1996-2004
- Mentored graduate students: MAg (2), MSc (3), PhD (1) as chair/co-chair

RESEARCH EFFORTS
Research Interests: Enhancing the quality, functionality and safety of meat and poultry products and by-products via pre- and post-harvest intervention strategies.

Research Objective: Assess, develop and evaluate innovative ingredient and meat processing technologies to enhance the nutritive value, quality and safety of underutilized meat/poultry products.

Research Impact: Focus on post harvest strategies utilizing innovative processing and ingredient technologies enhances the functionality, quality, safety, and sensory attributes of beef, pork and poultry products. Research projects have investigated the influence of chlorine dioxide on pathogen survival and recovery on chilled pork and poultry subprimals, reduced the presence of “off odors and flavors” in prerigor sow pork loins, enhanced yield and sensory properties of chicken patties and restructured hams via hydrocolloid gums, development of injectable “modified marbling” to mimic the organoleptic properties of intramuscular fat in whole muscle and ground beef products, development of alternative processing strategies for utilizing of dark, firm and dry beef in processed meat products, efficacy of cryoprotectants in manufacturing hams using frozen raw materials and determining the nitrate/nitrite levels of conventional and natural/organic U.S. meat products.

SELECTED PUBLICATIONS
Book Chapters
2. “Collagen Casings.” Chapter 19 in “Protein-based Films and Coatings.” Aris Gennadios, ed. Author
Articles in Professional, Peer Reviewed Journals


OUTREACH EFFORTS

Outreach interests: Planning and conducting a variety of workshops addressing food safety and quality issues through the application of pre- and post-harvest technologies. Certified by the International
HACCP Alliance as a lead instructor for the meat and poultry industry food safety training. Lead or support in conducting meat industry workshops for state, regional, national and international stakeholders to address meat industry safety and processing issues. Consult with various meat and poultry industry representative to solve food safety and quality-related issues.

**Outreach Impact:** In-plant and on-farm visits and university-sponsored workshops help stakeholders solve meat and poultry food safety and quality issues. This is an important component of the land grant mission. The ability to provide accurate current technical information and expertise for immediate application is beneficial to both the university and its stakeholders. Workshops include Creative Sausage making, Aggie processed meats Technology School and Pork 101.

**INTERNATIONAL PROGRAM PARTICIPATION**
**International Interests:** Service to the international society by providing technical expertise and assistance in conducting training or applied research in innovative ingredient and technology in processed meats.

**International Impact:** The application of meat science teaching and research expertise provide opportunities to provide education and training to assist the international society in solving meat-related safety and quality issues.

Exchange students and visiting scholars have been hosted in my teaching and research program from China, Philippines, Denmark, Honduras, Iraq and India. International seminars have been presented in South Korea, Canada, Mexico, Colombia, Peru and Chile.

**MEAT INDUSTRY CONSULTING**
The following companies have asked for my advice and/or expertise on a variety of processed meat issues to include product development, processing technologies, food safety and quality:

- YUM Brands International, USDA-FSIS, The Dow Chemical Company (MI), Jimmy Dean Foods-Sara Lee Meat Group (OH), Kent Quality Foods (MI), Jones Dairy Farm (WI), Galileo Foods (CA), Sadler’s BBQ (TX), WTI, Inc (GA), Mastertaste (TN), Innova (IL), Beef America (NE), Bil-Mar Foods (MI), NSF-Cook & Thurber (MI), John Morrell & Co. (OH), Routh Packing (OH), S.C. Johnson & Co. (WI), Norben Company, Inc. (OH), Columbia Packing Co. (TX), Opa’s Smokehouse (TX), Fallow Creek Farms (TX), Smoky Denmark (TX), City Market (TX), Dankworth Packing (TX), Texas Meat Packers (TX), Sanderson Farms (TX), Double B Foods (TX), City Market (TX), Southside Market & BBQ, Monogram Foods (TX), Big Creek Foods (GA).

**AWARDS**
**Texas A&M University**
2016: American Meat Science Association Processing Award
2005: AMSA Achievement Award.

**Michigan State University**
2002: Young Animal Science Leader Outstanding Teacher Award – Midwest ASAS/ADSA

**ORGANIZATION MEMBERSHIP/SERVICE**
**National**
- American Meat Science Association
- Phi Tau Sigma
- ASQ
- IFT

**University**
- Council of Principal Investigators
- COALS Graduate Program Committee
- COALS Undergraduate Program Committee
Joe C. Paschal

Professor and Extension Livestock Specialist
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
10345 State Hwy 44
Corpus Christi, TX  78406
361.265.9203
j-paschal@tamu.edu

Education:
   A.A., Del Mar College, Corpus Christi, Texas (1975)
   B.S., Animal Science, Texas A&M University, College Station, Texas (1977)
   M.S., Animal Science, Texas A&M University, College Station, Texas (1982)
   Ph.D., Animal Breeding and Genetics, Texas A&M University, College Station, Texas (1986)

Experience:
   1988 – Present
   – Professor and Extension Livestock Specialist for Texas A&M AgriLife Extension Districts 10, 11 and 12 (Southwest, Gulf Coast and South Texas), Corpus Christi, TX
   – External Professor of Animal Science, Texas A&M University-Kingsville, TX
   – Visiting Professor, Graduate Faculty, Texas A&M University, College Station, TX

Interests:
Interests include applied beef cattle breeding and genetics including applications of genomics, tropical and subtropical cattle production systems, growth and development, and carcass beef quality. National/international judge of beef breeding cattle, especially Brahman and Bos indicus influenced breeds. He has travelled extensively internationally especially in Mexico and Central and South America. He is a consultant for a large cattle, beef processor, and sugar concern in the Dominican Republic and a beef production project in the Republic of Vietnam.

Special Studies:
   – 2017 United Braford Breeders Association Steer Feedout and Carcass Contest
   – 2004 -16 Santa Gertrudis Breeders International National Steer Feedout
   – 1992-2004 Texas A&M University Ranch to Rail - South Program (Feeding and Carcass)
   – Jim Wells County Beef Cattle Improvement Association Bull Gain Test Program
   – Comprehensive Ranch Management for Profit - A South Texas IRM Program.

Awards:
   – San Antonio Livestock Show Special Service Award, 2015
   – State Texas A&M AgriLife Extension Specialist of the Year in Texas Agriculture, 2013
   – Host Recognition, Beef Improvement Federation, 2012
   – Continuing Service Award, Beef Improvement Federation, 2011
– Superior Service Award, Individual Specialist, Texas Agrilife Extension, 2009
– Superior Service Award, Team, Texas AgriLife Extension, 2009 and 2016
– Industry Award, Santa Gertrudis Breeders Association, 2008
– American Brahman Breeders Association “Brahman Friend of the Year”, 2003

**Background:**

The Extension Livestock Specialist is responsible for supporting the work of county Extension agents in Animal Science and in planning, conducting and evaluating programs in the 58 counties of the Southwest, South and Gulf Coastal Extension Districts in Texas. Dr. Paschal writes beef cattle extension articles for numerous publications and he serves on several advisory boards for beef cattle breed associations. He and his wife own and operate a commercial cattle ranch in South Texas where they have done custom AI, graze steers, and a nature tourism business. Their daughter is a veterinarian with a large animal private practice and their son works for the USDA Agricultural Marketing Service.
Sushil Paudyal

Instructional Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471

EDUCATION
B.S., Veterinary Science and Animal Husbandry, Tribhuvan University, Nepal
M.S., Animal Science (Animal Health), West Texas A&M University
Ph.D., Animal Science (Dairy Herd Health Management), Colorado State University

Dr. Sushil Paudyal will be joining the faculty of the Department of Animal Science as an Instructional Assistant Professor in January 2019. Dr. Paudyal received a bachelor’s degree in veterinary science and animal husbandry from Tribhuvan University in Nepal. He was a graduate research assistant at Texas A&M Agrilife Research in Amarillo, at which time he received his master’s degree in Animal Science from the Department of Agricultural Science at West Texas A&M University. He obtained his doctoral degree from the Department of Animal Sciences at Colorado State University, specializing in dairy herd management.

Dr. Paudyal’s research interests focus on using herd and animal level data for decision making in dairy farms. His research utilizes innovative technologies to optimize production, health, and well-being of dairy cattle.

Dr. Paudyal is a member of the American Dairy Science Association, the American Society of Animal Science, and has received accreditation as a Professional Animal Scientist from ARPAS.
Juan M. Piñeiro

Assistant Professor and Extension Dairy Specialist
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
6500 Amarillo Blvd West
Amarillo, TX 79106
806.677.5610
juan.pineiro@ag.tamu.edu

Education
DVM, University of La Plata, Faculty of Veterinary Sciences, Buenos Aires, Argentina
2012
MS, Department of Veterinary Preventive Medicine, The Ohio State University, 2016
PhD, Department of Veterinary Preventive Medicine, The Ohio State University, 2018

Current Position
Provide leadership and coordination for Extension educational programs in dairy management via applied research, result demonstrations, tours, workshops and field days. Provide technical expertise, training, teaching materials for county Extension agents, specialists, clientele, AgriLife Research, the Texas Veterinary Medical Diagnostic Laboratory and other state and federal agencies, and other organizations across the state. Work both individually and as a team member in planning, executing and evaluating result demonstration tours, field days and seminars. Develop and/or maintain close communication strategies with the Texas dairy industry through associations, boards, cooperatives and individual producers. Active in developing, promoting and achieving the goals and objectives of the Southern Great Plains Dairy Consortium and work to resolve dairy issues already identified by the SGPDC as they relate to production, reproduction and environmental management. Involved in the educational efforts of the U.S. Dairy Education & Teaching Consortium.

Experience
Participated in several internships and externships in Argentina and the EEUU working in cow-calf operations, Artificial Insemination and Embryo Transfer Centers and Dairy Farms between 2011 and 2014. From 2014 until 2018, I worked as a Graduate Research Associate for The Ohio State University.

Certificates
2017 Ohio Dairy Cattle Health and Management Certificate Program

Professional Memberships
- American Dairy Science Association
- Dairy Cattle Reproduction Council
- Dairy Cattle Welfare Council
- Texas Animal Nutrition Council
Research
- 5 Peer-reviewed publications
- 13 Scientific Abstracts & Proceedings
- 21 Workshops & conferences attended

Extension
Participated in the coordination and delivery of several OSU Extension programs for farm personnel (Dairy Personnel School), for practicing veterinarians and consultants (Ohio Dairy Health and Management Certificate Program and International Dairy Certificate Program), and for high school students and producers (The Farm Science Review in Ohio)

Teaching
Mentored several undergrad students with interest in Food Animal Medicine enrolled in the “Veterinary Early Commitment Program of OSU”. Taught as an invited lecturer Bovine Theriogenology, Dairy Cattle Management and Cattle Handling at the College of Veterinary Medicine, The Ohio State University.
Ky G. Pohler

Assistant Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.458.4476
kpohler@tamu.edu

EDUCATION
B.S., Animal Science, Texas A&M University, 2009
M.S., Animal Science/Physiology of Reproduction, University of Missouri, 2011
Ph.D., Animal Science/Physiology of Reproduction, University of Missouri, 2015
Ph.D., Minor in College Teaching of Science, University of Missouri, 2015

RESEARCH and PROFESSIONAL EXPERIENCE
2018 – Present Assistant Professor, Department of Animal Science, Texas A&M University
2015 – 2018 Assistant Professor, Department of Animal Science, University of Tennessee
2009 – 2015 Graduate Research Fellow; Division of Animal Sciences, University of Missouri

SYNERGISTIC ACTIVITIES
Professional Activities:
Member: Society for the Study of Reproduction, International Embryo Transfer Society, Brazilian Embryo Transfer Society, American Society of Animal Science
Service: Society for the Study of Reproduction Future Meetings Committee; USDA Regional W3112 Member Elect; Society for the Study of Reproduction Future Planning Committee
Ad hoc Scientific Peer Review: Biology of Reproduction; Journal of Dairy Science; Journal of Animal Science; Theriogenology; Molecular Reproduction and Development; Domestic Animal Reproduction; Biology of Reproduction; Domestic Animal Endocrinology

Peer Reviewed Publications (last year only):


**Grant and Contracts (last year only):**

**Primary Investigator or Co-PI**

UTRF Maturation Funding: Development of on-site diagnostic devices for early pregnancy detection in cattle using microRNA. Funded 2017, $15,000. PI: Ky G. Pohler; Co-PIs: Jayne Wu and Shigetoshi Eda.

International Seed Grant, International Programs UTIA: Sustainable Agriculture Internship in Beef and Forage Production between UTIA and Brazil UNESP/USP. Funded 2017, $8,000. PI: Ky G. Pohler; Co-PI: Renata Nave Oakes.


Select Sires Inc. Project: Assessment of a synthetic kisspeptin-10 analog (C6) and its effects on the hypothalamic-gonadal axis in bull calves. Funded 2017, $10,740. PI: Brian Whitlock; Co-PIs: Ky G. Pohler and Elizabeth Coffman.


FAPESP: Research opportunities to benefit the livestock industries in Brazil and North America – Sandwich Master’s Program. Funded 2017, USD$ 11,480 and BR$ 2,790. Graduate Student PI: Rafael Carvalho; USA PI: Ky G. Pohler; Brazil PI: Jose Vasconcelos.


**Patents and Disclosures**


**Disclosure:** Development of an improved Estrotect Patch to optimize pregnancy success in cattle. 2017. In collaboration with Estrotect Inc., the development of an improved version of the estrotect patch. Increased estrus expression prior to TAI or TET have been reported to lead to increased pregnancy establishment and a decreased pregnancy loss. The development of an improved estrotect patch could lead to an increase in pregnancy success in cattle. Inventor: K.G. Pohler; Co-Inventor: Estrotect


**Provisional Patent Application:** Biomarkers for Early Embryonic Viability and Methods Thereof. 2016. See below-disclosure.

**Disclosure:** Using extracellular vesicle derived microRNA (miRNA) as markers of embryo mortality. 2016. In cattle, early embryonic mortality accounts for 25% of pregnancy loss, while late embryonic mortality accounts for less than 10% of pregnancy losses. Recently miRNA packaged into small vesicles called extracellular vesicles, which are released from the plasma membrane, have been shown to be blood borne biomarkers of disease conditions and different physiology types. These works suggest that these extracellular vesicles containing miRNA may be markers of embryonic viability in cattle. Inventor: K.G. Pohler; Co-Inventors: Michael F. Smith, Lane K. Christenson

**Provisional Patent Application:** Pregnancy Associated Glycoprotein (PAG) Genes as Markers of Bull Fertility. 2016. See below-disclosure.

**Disclosure:** Pregnancy Associated Glycoprotein (PAG) Genes as Markers of Bull Fertility. 2015. The present disclosure describes the use of pregnancy associated glycoprotein (PAG) genes as markers of bull fertility. In the U.S., the annual cost of reproductive failure to the beef industries is estimated to be $600 million. The exact causes of the preceding reproductive failure include animal management issues, cow infertility, bull infertility, heat stress, and embryonic mortality. PAGs have been associated with embryonic mortality and pregnancy success in both beef and dairy cattle. Further, the use of the PAG genes as markers will allow for selection of high fertility sires. Inventor: K.G. Pohler
Honors and Awards

- University of Tennessee Department of Animal Science Buford E. Ellington Distinguished Faculty Award for Research, Teaching and Extension (2017)
- University of Tennessee Research Foundation Inventor Spotlight (2017)
- University of Tennessee Gamma Sigma Delta Inductee (2016)
- University of Tennessee Research Foundation Innovation Driver Award (2016)
- University of Tennessee AgResearch Faculty 360 Spotlight (2016)
- University of Tennessee Institute of Agriculture Ag Research Travel Grant (2016)
- SEC Travel and Collaboration Grant (2015)
- Agri-King Outstanding Animal Science Young Scholar Award ASAS (2015)
W. Shawn Ramsey

Professor  
Assistant Department Head for Undergraduate Programs  
Department of Animal Science  
Texas A&M University  
College Station, TX  77843-2471  
979.845.7616  
sramsey@tamu.edu

EDUCATION
Ph.D., Animal and Range Science, 1995, New Mexico State University, Las Cruces, NM  
M.S., Animal and Range Sciences, 1993, New Mexico State University, Las Cruces, NM  
B.S., Animal Science, Science Option, 1990, Texas A&M University, College Station, TX

POSITION DESCRIPTION
This position includes development and teaching of undergraduate courses in Introductory Animal Science, Sheep and Goat Production, Wool and Mohair evaluation, and livestock practicum courses. Coach and coordinate the undergraduate wool judging team. Advise students on coursework, degree plans, and career opportunities. Coordinate all recruiting activities and scholarship programs for the Department. Develop programs to increase student retention and decrease academic probation rate. Develop and coordinate internships and departmental high impact programs for undergraduate students. Develop extension sheep and goat programs. Maintain interaction with commodity groups in addition to representing and promoting the department at the state, national and international levels in addition to recruiting top perspective students, respectively.

PROFESSIONAL EXPERIENCE
2011 – present  Professor and Assistant Head for Undergraduate Programs, Department of Animal Science, Texas A&M University  
2001 – present  Associate Professor, Department of Animal Science, Texas A&M University  
1995 – 2001  Assistant Professor, Department of Animal Science, Texas A&M University  
1990 – 1995  Graduate Research Assistant, Department of Animal and Range Sciences, New Mexico State University, Las Cruces, New Mexico

PROFESSIONAL ACTIVITIES, AWARDS, AND HONORS
• Fish Camp Namesake Award, 2016  
• Association of Former Students – University Level Teaching Award, 2015  
• Sheep and Goat Raisers’ Association Special Achievements Award for Education, 2011  
• AgriLife Advanced Leadership Program, 2012  
• Margaret Annette Peters Advisor Award, Texas A&M University, 2010  
• Vice Chancellor’s Award for Undergraduate Teaching and Advising, 2008  
• Vice Chancellor’s Award in Excellence for Undergraduate Teaching Program, 2008  
• Aggie Access Program – Group Namesake Award, 2008  
• Vice Chancellor’s Award in Excellence for Industry Partnership Efforts for Sheep Skill-a-thon, 2007  
• Vice Chancellor’s Award in Excellence for Student Counseling/Advising and Relations, 2003  
• Association of Former Students – University Level Teaching Award – Nominee, 2002  
• Vice Chancellor’s Award for Undergraduate Teaching and Advising, 2002
• Outstanding Young Scientist Award for Education from the Southern Section American Society of Animal Science, 2001
• Association of Former Students – University Level Teaching Award – Nominee, 2000
• National Association of College Teachers of America Teaching Award of Merit, 1999
• College of Agriculture and Life Sciences’ Honor Professor Award, 1999
• Haas-Litterst Outstanding Teaching Award in the Department of Animal Science, 1999
• Association of Former Students College Level Distinguished Teaching Award, 1998
• College of Agriculture and Life Sciences Outstanding Teaching Award, 1998
• Center for Teaching Excellence Teaching Award – Montague Scholar, 1997
• E.F. and Gertrude Neuhaus Teaching Award, 1996

PROFESSIONAL AFFILIATIONS
• Brazos County Youth Livestock Association
  ▪ Board of Directors, 2009 – present
  ▪ Sheep Show Chairman, 1999 – present
• Texas Lamb Breeders Association
  ▪ First Vice President, 2014 – present
  ▪ President, 2009-2012
  ▪ Chair, Scholarship Committee
  ▪ Co-Chair, San Angelo livestock Show – Show Financial Contributions
  ▪ Co-Chair, Market Lamb Breed Standards
  ▪ Vice President, 2006-2009
  ▪ Show Coordination Committee
• Texas Junior Livestock Association, Board Member, 2008 – present
  ▪ Board of Directors
  ▪ Sheep Show Chairman
• National Southdown Sheep Association
  ▪ Board Member, 2008-2010
  ▪ Committee – Youth Development Programs
  ▪ Committee – Health and Research
• American Society of Animal Science
  ▪ Sheep Committee, Chairman, 2002-2003
  ▪ Sheep Committee ,Vice-Chair, 2001-2002
  ▪ Sheep Committee, Member, 2000-2001
  ▪ Education Committee, Member, 2001-2002
  ▪ Ad Hoc Reviewer, Journal of Animal Science – Wool and Fiber Section
  ▪ Member – ASAS National Sheep Committee
• Western Regional Coordinating Committee, Member
  ▪ Chairman, 2000-2001
  ▪ Vice Chairman, 1999-2000
  ▪ Secretary, 1998-1999
• American Southdown Sheep Association
  ▪ Research Committee
• Texas Sheep and Goat Raisers Association
TEACHING

Significant Development of Courses

I have developed the General Animal Science (ANSC 107) course to incorporate and improve students’ communication, quantitative analysis, teamwork and critical thinking skills as per University core curriculum descriptions. Thus, I have submitted and obtained approval for the course to be considered a life and physical sciences core curriculum course beginning fall 2014.

I have also obtained approval of two of my courses (ANSC 414; ANSC 314) for writing intensive credit. Students are prompted to find solutions to real world situations or interpret peer-reviewed articles in an essay-type response. Incorporating and developing the writing component within the courses has increased the preparedness of the Departmental students for future employment and increased their critical thinking skills.

Courses and Responsibilities

Animal Science 107 – General Animal Science, 3 credit hours. Fall/Spring 1995-present. Scientific animal agriculture; selection, reproduction, nutrition, management and marketing of beef cattle, swine, sheep, goats and horses; evaluation and processing of meats, wool and mohair. Importance of livestock and meat industries.

Animal Science 107 Focus – General Animal Science, 3 credit hours. Fall/Spring. 2011 -present. See course description above. This smaller section (20-27) targets students from small high schools, historically lower socioeconomic backgrounds and first-time generations to attend college. The size and teaching efficacy have proved to be beneficial to the students enrolled, for the Department has witnessed greater retention rates and more successful students. The opportunity to teach this class and see these students succeed is very rewarding.

Animal Science 107 Honors – General Animal Science, 3 credit hours. Fall 2010-2013. Philosophy of animal agriculture; selection, reproduction, nutrition, management, and marketing of beef cattle, swine, sheep, goats and horses; evaluation and processing of meats, wool and mohair; importance of livestock and meat industries. This small class is comprised of biomedical sciences students with little knowledge of the livestock industry. I find this class very challenging, yet rewarding, as I am confident my students grasp the role that agriculture plays in society.

Animal Science 314 – Wool and Mohair Evaluation, 2 credit hours. Fall. Evaluation of USDA grades of wool and mohair; steps involved in processing raw wool and mohair; grading and evaluation of fleeces for economic traits; live animal selection based on fiber selection; oral and written defense of judgment. This course has become our departmental freshman orientation course and is key to our students’ success. Interested students can pursue involvement on the Departmental wool judging team. *Writing intensive accredited.

Animal Science 414 – Sheep and Goat Production, 4 credit hours. Fall/Spring, 2-3 lab sections per semester. Application of basic principles of genetics, physiology, reproduction and nutrition to practical sheep and goat production systems; management, health, care and marketing of animals and fiber.

Animal Science 484 – Livestock Practicum, 1 credit hour. Capstone course for seniors pursuing careers in agriculture education or extension service. Provides students with hands-on learning of skills needed to succeed in their chosen careers.

Animal Science 489 – Special Topics: Agriculture Production, 3 credit hours. Fall. This class was generated to accommodate our Action 2015 High Impact Programs (HIP) for study abroad trips. Trips to New Zealand, Brazil, Ireland, the UK and Australia have been completed.
*Animal Science 494 – Directed Studies – Houston Livestock Show Internship*, varied credits. This class is for our HIP internship program for students completing an internship with the Houston Livestock show and Rodeo™.

**Extension Programs**

**Aggieland Goat Camp – Developer and Coordinator**

Aggieland Goat Camp was established 17 years ago to meet the needs for information and training for meat goat projects that were gaining momentum. This camp is one of the largest and most unique programs in the nation involving 4-H and FFA youth, their parents and animals. Each of the three-day camps are designed to engage adults and youth alike with various presentations covering selection, facilities, feeding, animal health, exercise, presentation and grooming. Each year we will have over 425 people in attendance for this 3-day educational event. This program has provided hands-on training to approximately 7200 youth and adults with having a successful youth livestock project.

**Aggieland Lamb Camp – Developer and Coordinator**

Aggieland Lamb Camp was initiated 17 years ago to fill the educational needs of lamb feeders. This camp is one of the largest and most unique programs in the nation involving 4-H and FFA youth, their parents and animals. Each of the three-day camps are designed to engage adults and youth alike with various presentations covering selection, facilities, feeding, animal health, exercise, presentation and grooming. Each year we will have over 425 people in attendance for this 3-day educational event. This program has provided hands-on training to approximately 7200 youth and adults with having a successful youth livestock project.

**San Antonio Livestock Exposition Skill-a-Thon – Developer and Coordinator**

The youth educational event, with over 120 youth participants, awards an excess of $24,000 in scholarships annually. The Skill-a-Thon is a unique contest in which 4-H and FFA members compete in hands-on activities, written exam, identification of materials and use, and a prepared oral speech. The contest is used to identify and reward outstanding youth for their efforts.

**Texas 4-H Livestock Ambassador Program – Development Committee**

Assist in the coordination each year of the program’s design, details and events. In addition, I provide three lectures at a collegiate level to high school students to promote awareness of college readiness, intensity of course material, and expectations of these individuals. This course is utilized as a tool to promote agriculture advocacy and leadership in preparation of attending a university in pursuit of an agricultural career.
NAME:        Ronald D. Randel
LOCATION:    Texas A&M AgriLife Research and Extension Center, Overton
ADDRESS:     1710 N FM 3053; PO Box 200, Overton, Texas 75684
TELEPHONE:   903.834.6191  FAX: 903.834.7140  EMAIL: r-randel@tamu.edu

EDUCATION:
Washington State University, 1963-65, B.S., Animal Science
Purdue University, 1965-71, Ph.D., Reproductive Physiology

PROFESSIONAL EXPERIENCE:
Professor, Regents Fellow and Senior Faculty Fellow; Jan. 2005 to date
Professor, Regents Fellow and Faculty Fellow; Oct. 1999 to date
Professor and Faculty Fellow; Jan. 1999 to Oct. 1999
Visiting Sci.–USDA-ARS, US Range Livestock Exp. Station, Miles City, MT, May 71- May 72
Instructor in Research – Purdue Univ., Lafayette, IN, Sept. 1965 to May 1971
United States Navy enlistee for four years, 1958-1962

HONORS AND AWARDS:
American Society of Animal Science, L.E. Casida Award, 2012
Build East Texas Award of Excellence in Research and Extension, 2011
Texas A&M University System Team Award in Excellence for System Partnerships, 2009
Texas A&M University System Team Award in Excellence for System Partnerships, 2008
Southern Section American Society of Animal Science Distinguished Service Award, 2008
American Society of Animal Science Fellow, 2007
Texas Agricultural Experiment Station Senior Faculty Fellow, 2005
Texas A&M University System Award in Excellence for International Involvement, 2002
Texas A&M University Regents Fellow, 1999
Texas Agricultural Experiment Station Faculty Fellow, 1999
Build East Texas Award of Excellence in Agricultural Research & Extension, 1998
American Society of Animal Science Physiology & Endocrinology Award, 1996
Texas A&M University Department of Animal Science Outstanding Service Award, 1994
Texas A&M University System Award in Excellence for Team Research, 1990
Texas A&M University System Award in Excellence for Research Off-Campus, 1987
Senior Fulbright Research Fellow, Australia, 1984

PROFESSIONAL MEMBERSHIPS AND SOCIETIES:
JOURNAL ARTICLES (Recent and/or relevant to this proposal):


R. Reid Redden

Associate Professor and Extension Sheep & Goat Specialist
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
7887 US Highway 87 North
San Angelo, TX  76901
325.357.7324
Reid.Redden@ag.tamu.edu

2007-2009  Ph.D. (Ruminant Nutrition), Montana State University
2004-2006  M.S. (Reproductive Physiology) New Mexico State University
2001-2005  B.S. (Animal Science), Texas A&M University

Employment
2015-present  Sheep/Goat Specialist, Associate Professor, Texas A&M AgriLife Extension, San Angelo
2010-2015  Extension Sheep Specialist & Assistant Professor, North Dakota State University, Fargo
2007-2010  Research Associate, Montana Sheep Institute, Montana State University, Bozeman

Extension, Research, and Teaching Summary

<table>
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<th>Extension programs</th>
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<td>Extension presentations</td>
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<td>Graduate advisees</td>
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Achievements and Awards
- Myron and Muriel Johnsrud Excellence in Extension/Outreach Award, NDSU 2012
- Extension Program of Excellence Award, NDSU2012

Committee Assignments

National
- National Sheep Improvement Program, Chairman, 2013 - present
- National 4H and FFA Wool Contest, Superintendent, 2015 - present
- American Sheep Industry – Genetic Stakeholders Committee – 2013-present
- American Sheep Industry – Production, Education and Research Council, 2012-present
- American Lamb Board – Implementation Committee, 2014 - present
- American Goat Federation, Advisory Council, 2015 - present
- eXtension Sheep Community of Practice – Leadership Team, 2012-present

Regional
- NCERA-214, Increase Efficiency of Sheep Production, 2011-present

State
- Texas Sheep and Goat Validation Program – State Committee – 2015 - present
- State 4H Wool and Mohair Contest, Superintendent, 2015 - present
- Texas Sheep and Goat Raisers, TROT Coordinator, 2015-present
Department

- Faculty Advisory Council, 2017 – present
- Extension Innovation Think Tank, 2017 – present

Publications

Refereed Journal Articles, 17


**Peer-Reviewed Extension Bulletins, 14**


**Redden, R.** (revised publication) 2013. Early Weaning Lambs. NDSU: AS-1318

**Redden, R.** (revised publication) 2013. Abortions in Sheep. NDSU: AS-1317


Penny K Riggs

Associate Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.862.7015
riggs@tamu.edu

EDUCATION
Ph.D. 1996  Texas A&M University, Molecular Genetics
M.S. 1991  Purdue University, Animal Cytogenetics
B.S. 1987  Purdue University, Biology

PROFESSIONAL EXPERIENCE
9/2012-present  Associate Professor, Department of Animal Science, Texas A&M University
11/2006-9/2012 Assistant Professor, Department of Animal Science, Texas A&M University
9/2002-9/2006 Associate Director and Instructor, Functional Genomics Facility Core, UT MD Anderson Cancer Center, Science Park – Research Division, NIEHS Center for Research on Environmental Disease
9/2003-9/2006 Analyst, Biostatistics and Informatics Core, UT MD Anderson Cancer Center, Science Park – Research Division
2/1997  International Visiting Research Scholar, Science and Technology Agency of Japan, National Institute of Radiological Sciences, Chiba, Japan
10/1997-9/2002 Postdoctoral Fellow, UT MD Anderson Cancer Center, Science Park – Research Division
7/1996-9/1997 Texas Aerospace Postdoctoral Fellow, Department of Pharmacological and Pharmaceutical Sciences, University of Houston Institute of Space Systems Operations, and Medical Operations Branch, NASA LB Johnson Space Center
9/1995-8/1996 Graduate Research Assistant, Research Associate, Veterinary Integrative Biosciences, Texas A&M University
9/1991-8/1995 Regents’ Graduate Fellow, Graduate Research Assistant, Veterinary Pathobiology, Texas A&M University
9/1987-8/1991 Laboratory Technician VIII, Cytogenetics Laboratories, Department of Animal Sciences, Purdue University
1/1987-9/1987 Laboratory Technician V, Purdue Cancer Center Cell Culture Laboratory, Department of Medicinal Chemistry, School of Pharmacy, Purdue University
5/1986-12/1986 Animal Caretaker IV, Dairy Research Farm, Department of Animal Sciences, School of Agriculture, Purdue University
8/1985-5/1986 Training Coordinator, Copy Chief, and Copy Editor, The Purdue Exponent, West Lafayette, IN

PROFESSIONAL ACTIVITIES
- Texas A&M Council of Principal Investigators (Chair 2017-18, Vice Chair 2016, Executive Committee 2013-19) – representing 2,375 researchers across Texas A&M
- Research Development Fund Advisory Committee (resulted in Texas A&M Research Infrastructure Investments of ~$28 million), Founding Chair, 2015-2018
- Founding Director, Whole Systems Genomics Initiative (now Texas A&M Institute for Genome Sciences and Society), 2009-12
• Faculty member, Interdisciplinary Program in Genetics (2007-2017)
• Adjunct Faculty Member, Department of Veterinary Integrative Biosciences, Texas A&M University (2007-present)
• Affiliate Scientist, The Sydney and J.L. Huffines Institute for Sports Medicine & Human Performance (2011-present)
• American Society of Animal Science
  • Public Policy Committee (2013-present, Chair 2016-2018)
  • AAAS Affiliate Representative to Sections G, O, and X (2015-18)
  • JAM Contemporary and Emerging Issues Committee (2015-16)
• Member, USDA NIFA Multistate Regional Project NC-1184, Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation (2007 – present; Chair, 2010)
• Membership in American Assoc for the Advancement of Science, American Association for Cancer Research, American Genetic Association, American Meat Science Association, American Society of Animal Science, International Society for Animal Genetics, Sigma Xi, Gamma Sigma Delta

HONORS & AWARDS
• Distinguished Service Award, Texas Genetics Society, 2017
• New Advisor of the Year Award, TAMU Division of Student Activities, 2016
• George W Kunze Award for meritorious service to the Graduate and Professional Student Council and the Graduate Student Body, 2016
• Sigma Xi Outstanding Science Communicator Award (TAMU Chapter), 2015
• Gamma Sigma Delta Faculty Award of Merit for Research (TAMU Chapter), 2013
• Texas AgriLIFE Vice Chancellor’s Award of Excellence for Research (Team Award), McGregor Bovine Genomics Team, 2010
• American Association for Cancer Research-WICR Brigid G. Leventhal Scholar in Cancer Research, 2001

Recent Funding
• Determination of Genetic Determinants of Intramuscular Fat Deposition, President’s Excellence Fund, Texas A&M, 2018-19, PI: Riggs
• Effect of Prenatal Stress on DNA Methylation and Correlation with Gene Expression in Cattle, USDA NIFA AFRI, 1/1/2018-12/31/2021, PI: Randel, Co-PI: Riggs
• Whole genome sequencing of non-pathogenic E. coli approved by USDA-FSIS as pathogen surrogates, Texas Beef Council, PI: Taylor, Co-PI Riggs
• Development of Texas A&M Mass Spectrometry Collaborative Core Facility, Texas A&M System Chancellor’s research initiative. 2016-present.
• International River Buffalo Consortium (Italy), 2016, Sequencing River Buffalo Hybrid DNA.
• Collaborative Research: Genomics & Society: Exploring Ethics, Impacts and Consequences of Technological Advances. NSF 1237881, 10/1/2012 – 8/31/2016. PI: Riggs
• Improved Effectiveness of Targeted Grazing Through Genetic Selection. USDA National Sheep Industry Improvement Center, 1/1/2013 -6/30/2014. PI: Waldron, Co-PI: Riggs
• Food security solutions: TAMUS and the Texas Beef Industry. TAMUS Area Chancellor’s Challenge 41 ProjectProgram. 97/125/2015-8/31/2017, PI: Riggs
• Discovery of novel genomic regulators of beef cattle growth and muscle development to enhance and optimize sustainable production. Texas A&M AgriLife Research Sustainable Beef Production Systems. 9/1/2015 – 8/31/2017, PI: Riggs
The Effect of Sight Configuration on Performance and Stress Response in Shooting Under Pressure.
Huffines Institute Practitioner Grant, 2/20/2015-8/31/2016, Role: PI: Riggs


David Greg Riley

Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.845.2667
david-riley@tamu.edu

Education
Ph.D.  Genetics, Texas A&M University, 2000
Dissertation:  Heterosis and heterosis retention in reproductive traits, weight and condition of Brahman - British crossbred cows
M.S.  Animal Breeding, Texas A&M University, 1997
Thesis:  Evaluation of postpartum udder characteristics of F1 cows sired by Angus, Gray Brahman, Gir, Indu-Brazil, Nellore and Red Brahman bulls
B.S.  Agricultural Economics, Texas A&M University, 1984

Experience
2009-present  Texas A&M University, Department of Animal Science
•  Responsible for development, evaluation, and implementation of effective selection programs in livestock species using traditional and genomic information.
•  Teach three graduate courses: introductory quantitative genetics; advanced quantitative genetics (Introduction to Bayesian Inference) and prediction of genetic merit (best linear unbiased prediction).
•  Train Ph.D. and M.S. students in Genetics, Animal Breeding, and Animal Science.
•  Research efforts:
  ▪  Fine mapping of livestock economically-relevant traits through the development and phenotypic and genomic evaluation of F3, F4, and (first calves born in 2018) F5 generations of half Nellore half Angus cattle.
  ▪  Genomic and physical characterization of adaptation traits in cattle and sheep, including resistance/tolerance to internal parasites, accumulation and shedding of winter coats in cattle, variation in anatomy/pigmentation that functions as protection against solar-induced eye cancer in cattle.  International collaborators in South Africa, Canada, Australia, and Kenya.
  ▪  Genomic improvement of female fertility in livestock, including development of a panel of SNP (identified within exons of genes differentially expressed in reproductive tissues) for use of fertility prediction in Brangus cattle; evaluation and genomic assessment of early life reproductive success in Brahman cattle; expression of heterosis for cattle fertility and genomic support of heterosis.  Collaborators in U.S. and México.
  ▪  Non-Mendelian and epigenetic inheritance of traits of economic importance, including interactions of imprinted loci and their influence on prenatal growth and size at birth as well as fertility in cattle, methylation patterns and differential gene expression in multiple tissues related to reproduction in cattle.
  ▪  Inclusion of multiple categories of genomic information in prediction of genetic merit for selective improvement of livestock.
  ▪  Genetics of longevity in livestock, including identification of genomic regions significantly associated with differential longevity of cows as a complete trait as well as subdivided into component traits.
  ▪  Economics of genetic change in livestock.
2000-2009 USDA, ARS, STARS, Brooksville, Florida
- Directed the management, mating plans, and culling of 600-cow research herd.
- Designed experiments, planned, conducted, analyzed, and reported beef cattle breeding and genetics research.
- Research efforts included:
  - evaluation of breeds of cattle adapted to the tropics and subtropics, specifically the estimation of direct and maternal breed genetic effects, including heterosis;
  - selection of parents to improve economically important traits of tropically adapted cattle through development/enhancement of breeding values and incorporation of gene/DNA marker-phenotype associations in selection programs.
- Additional training for statistical applications in genetics: survival analysis, coalescent theory, Markov Chain Monte Carlo methods, microarray analyses, generalized linear mixed models, genomic selection.
- Co-operative Research Programme Fellow, Organisation for Economic Co-operation and Development, Paris, France. Fellowship for sabbatical and research conducted with Commonwealth Scientific and Industrial Research Organisation scientists in Brisbane and Rockhampton, Queensland, Australia, 2008. Successfully exported DNA from over 850 cattle to Australia for this project.

1995-2000 Animal Science Department, Texas A&M University
- Graduate and Teaching Assistant
- 1998 Vice Chancellor of Agriculture Graduate Student Teaching Award

1985-1995 DeKalb Swine Breeders, Inc. Plains, Kansas
- Began in entry level animal husbandry.
- Single and multi-farm management (maximum 5,400 sow farrow-to-finish units with 64 employees).
- Breeding stock testing and selection from 8 1,350-sow production units and quality control for customers (8 employees).
- Developed and implemented management training program—2 years.
- International customer service: México.

1984-1985 United States Army

Peer-Reviewed Publications—Last 4 Years
An asterisk (*) indicates graduate student.


73 peer-reviewed publications
48 invited presentations; 30 of those were international invitations: Australia, Brazil, China, Colombia, Costa Rica, Ecuador, Korea, México, Panamá, Venezuela
James O. Sanders

Professor
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EDUCATION
B.S., Animal Science, Texas A&M University, 1968 (with high honors)
M.S., Animal Breeding, Texas A&M University, 1974
Ph.D., Animal Breeding, Texas A&M University, 1977

EXPERIENCE
Professor, Department of Animal Science, Texas A&M University, 1991 - present
Associate Professor, Department of Animal Science, Texas A&M University, 1983-91
Assistant Professor, Department of Animal Science, Texas A&M University, 1976-83
Research Associate, Department of Animal Science, Texas A&M University, 1974-76
Research Fellow, Department of Animal Science, Texas A&M University, 1973-74
Tom Slick Research Fellowship
Ranch Manager, Michaelis Ranch, Kyle, Texas, 1968-69 and 1971-72

MEMBERSHIP in PROFESSIONAL ORGANIZATIONS
American Society of Animal Science

AWARDS and RECOGNITION
- Dedicatee of the National Brahman Show, 2015
- Honor Professor Award, College of Agriculture and Life Sciences Student Council, 2012
- American Society of Animal Science Rockefeller Prentice Memorial Award in Animal Breeding and Genetics, 2009
- Beef Master Breeders United Commitment to Excellence Award, 2001
- Texas Brahman Association 1997 Beef Booster of the Year, 1997
- Association of Former Students Distinguished Teaching Award – University Level, 1991
- Association of Former Students Dist. Teaching Award, College of Agriculture and Life Sciences, 1989
- American Brahman Breeders Association Brahman Friend of the Year, 1987

NATIONAL / INTERNATIONAL SERVICE
- International Scientific Council of ONYC S.A., a company with breeding projects in Argentina, Brazil, Bolivia, Chile, Paraguay, Uruguay, New Zealand and South Africa, 2003-08; chairman from March 2005 to April 2008.
- Collaborative work with the International Livestock Center for Africa (ILCA) regarding systems analysis of beef cattle production in Botswana, 1978-80
- Have traveled, made presentations, observed livestock production and research and/or judged cattle shows in Mexico, Belize, Costa Rica, Panama, St. Croix, Brazil, Argentina, Colombia, Equador, Botswana, South Africa, Kenya, Zimbabwe, Thailand, Canada, Paraguay, Australia, and Guatemala.
Teaching Activities (Classes Taught)
- Animal Science 305 (Animal Breeding), 1975-1985 and 1987-2018
- Genetics 613 (Quantitative Genetics), 1982
- Animal Science 606 (Beef Cattle Production [growth and development]), 1986, 1987
- Animal Science 616 (Advanced Animal Breeding topics), 1985
- Animal Science 328 (Undergraduate Animal Breeding), 1976-85, 1987-2018
- Animal Science 628 (Graduate Animal Breeding), 1996 to 2018

Research Activities

SELECTED PUBLICATIONS

a. Refereed Publications


M. Carey Satterfield

Associate Professor
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.845.6448
csatterfield@tamu.edu

Education

Postdoctoral Training, Growth and Nutrition, Department of Animal Science, Texas A&M University, College Station, TX, October 2009

Doctor of Philosophy, Physiology of Reproduction, Department of Animal Science, Texas A&M University, College Station, TX, May 2008
Dissertation Title: Progesterone regulation of endometrial factors supporting conceptus growth and development in the ovine uterus.

Master of Science, Physiology of Reproduction, Department of Animal Science, Texas A&M University, College Station, TX, December 2004
Thesis Title: Evaluation of the effect of progesterone CIDR devices on circulating levels of progesterone in cyclic ewes.

Bachelor of Science, Texas A&M University, College Station, TX, Animal Science, Cum Laude, December 1999

Experience

Current Position: Associate Professor in Physiology of Reproduction
Department of Animal Science, Texas A&M University
September 2015-Present

Current appointment: 10-month, tenure track: 60% research, 30% teaching, 10% service.

Research

Program Statement: Improving health and well-being in humans while increasing economic sustainability of livestock producers through state-of-the-art research to identify translational strategies to improve growth and survival of the fetus and neonate.

Grants and Contracts Awarded

Ongoing or Recently Completed Research Support
1R01HD080658-01A1 National Institutes of Health
Understanding Placental Adaptation to Maternal Malnutrition
$1,510,299 9/1/15-6/30/20
Role: Principal Investigator
Improved Live Attenuated Brucella Vaccines to Reduce Human Disease
$2,089,328   7/1/15-6/30/18
Role: Co-Investigator

Nutritional Programming of Postnatal Growth and Performance of Beef Heifers
$150,000  9/1/15-8/31/17
Role: Principal Investigator

Transcervical and Laparoscopic Insemination of Sheep and Goats
$16,625  9/1/16-8/31/17
Role: Co-I/Mentor

Select Invited Presentations (from total of 19):

Honors and Recognition (since 2012)
2. Outstanding Young Animal Scientist in Research Award, Southern Section of the American Society of Animal Science (2013).

Publications and Scholarly Work
Peer-Reviewed (selected publications from total of 43)
† denotes corresponding author


Service

Professional Organizations

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<td>Society for the Study of Reproduction</td>
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<td>Society for Gyneocolgical Investigation</td>
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<td>American Society of Animal Science</td>
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International Service
1.) Review editorial board: Frontiers in Epigenomics
2.) Ad hoc reviewer for numerous refereed scientific journals
3.) Ad hoc reviewer for funding agencies
   Israel Science Foundation (2012)

National Service
1.) Ad hoc reviewer for funding agencies
   USAID (2012)
   NIH (2017 & 2018)
1.) USDA Germplasm Small Ruminant Committee member 2010-present
2.) USDA Germplasm Angora goat embryo preservation program (2010-2011)
Jeffrey Wyatt Savell

University Distinguished Professor, Regents Professor, and E.M. “Manny” Rosenthal Chairholder
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.3992
j-savell@tamu.edu

EDUCATION:
B.S. (Animal Science), Cum Laude, Texas A&M University, 1975
M.S. (Animal Science), Texas A&M University, 1976
Ph.D., Texas A&M University, 1978

PROFESSIONAL AND ACADEMIC APPOINTMENTS:
Instructor, Department of Animal Science, Texas A&M University, 1976-1977
Meats Specialist, Texas Agricultural Extension Service, College Station, 1977-1979
Assistant Professor, Department of Animal Science, Texas A&M University, 1979-1983
Associate Professor, Department of Animal Science, Texas A&M University, 1983-1988
Professor, Department of Animal Science, Texas A&M University, 1988-2014
Section Leader, Meat Science Section, 1989 to 2017
E.M. “Manny” Rosenthal Chairholder, 1992 to present
Regents Professor, Department of Animal Science, 2006 to present
University Distinguished Professor, Department of Animal Science, 2014 to present

RESEARCH INTEREST AND GRANT SUPPORT:
Research areas include quality/consistency, food safety, nutrition, and value added.
Conduct a wide array of research projects involving beef, lamb and pork. Since 1979, have been Principal Investigator or Co-Investigator of projects valued at over $16.0 million.
Published over 330 refereed scientific journal articles and over 900 total publications.

PROFESSIONAL ACTIVITIES AND RECOGNITION (Research Only):
Deputy Chancellor for Agriculture's Distinguished Performance Award for Team Research (for electrical stimulation) — 1982
Southern Section, American Society of Animal Science Outstanding Young Scientist Award — 1985
Deputy Chancellor for Agriculture's Distinguished Performance Award for Team Research (for the National Consumer Retail Beef Study) — 1986
George Strathearn Memorial Research Award, California Beef Council — 1987
Beef Merchandising Award, Texas Cattle Feeders Association — 1988
Progressive Farmer Man of the Year in Service to Southwest Agriculture — 1989
American Society of Animal Science Meat Research Award — 1990
American Meat Science Association’s Distinguished Research Award — 1991
Vice Chancellor’s Awards in Excellence (CARDS), 1993
Vice Chancellor’s Award in Excellence - Research on Campus — 1997
Vice Chancellor’s Award in Excellence Team Award (Gene Mapping) —1998
Highly Cited Researcher, ISI HighlyCited.com — 2001
Vice Chancellor’s Award in Excellence Team Award (Beef Safety) – 2004
E. Floyd Forbes Award, National Meat Association — 2005
Regents Professor Award, Board of Regents, Texas A&M University System — 2006
University Distinguished Professor, Texas A&M University — 2014
Recent research articles (last five years)


Jason E. Sawyer

Associate Professor and Associate Department Head
Superintendent, McGregor Research Center
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.1543
j-sawyer@tamu.edu

Education
B.S., Rangeland Ecology and Management, Texas A&M University, 1995
M.S., Ruminant Nutrition, New Mexico State University, 1998
Ph.D., Beef Cattle Nutrition and Management, New Mexico State University, 2000

Positions and Employment
2009-Present  Assoc. Prof. Beef Cattle Nutrition & Management, Dept. of Animal Science, Texas A&M University
2009-Present  Assoc. Dept. Head, Dept. of Animal Science, Texas A&M University
2008-Present  Superintendent, McGregor Research Center, Texas A&M AgriLife Research
2003-08  Assistant Professor, Beef Cattle Nutrition & Management, Texas A&M University
2000-03  Assistant Professor and Extension Beef Specialist, Clayton Livestock Research Center, New Mexico State University

Professional Experience
Relevant Selection of Recent / Current Funding


LIST OF PUBLICATIONS (last 3 years)
Asterisk (*) indicates graduate student.


10. Tolleson, MW; Gill, CA; Herring, AD; Riggs, PK; Sawyer, JE; Sanders, JO; Riley, DG. 2017. Association of udder traits with single nucleotide polymorphisms in crossbred–cows. J. Anim. Sci. 95:2399-2407.

MEMORANDUM

TO: Dr. C. Lamb  
Head, Department of Animal Science

FROM: Dr. Chris L. Skaggs  
Associate Dean for Student Development, College of Agriculture and Life Sciences  
Professor and San Antonio Livestock Exposition Chair

Associate Dean for Student Development Responsibilities

- Teach AGLS 101, orientation course for college, 400-student enrollment in Fall and 250 in Spring, course focuses on opportunities in college highlighting study abroad, internships, time management and study strategies, financial aid and budgeting, minors in college, résumé preparation, graduate studies and social media, 2009-present.

- Teach ANSC 101, orientation course for incoming students in the Department of Animal Science, 250-student enrollment in the Fall, course focuses on programs and opportunities in the department, create an awareness of campus resources for financial aid and academic success and an introduction to departmental high impact educational opportunities, 2018.

- Teach and coordinate ANSC 108, Introductory Animal Science laboratory, 500-student enrollment in the Fall, 150 students in the Spring and 20 students in the Summer, 1992-present.

- Chairman, College of Agriculture and Life Sciences Scholarship Program – work with committee to award 1950 scholarships annually ($2.3 million for 2017-18), responsible for communication with recipients and donors, posting of scholarships on student accounts, managing scholarship database, 2009-present, worked with Dr. Elsa Murano on scholarship component of USAID grant proposal for Afghanistan, 2018.

- Faculty Advisor, College of Agriculture and Life Sciences Student Council, 50-plus student members representing all 14 departments in the college, bimonthly meetings, monthly meetings with Vice Chancellor and Dean, responsible for Back to School Ice Cream Social, Agriculture and Life Sciences Career Fairs, President Council Meetings, Student Development Programs, College Convocation and Community Service Projects (5-7/year), 2009 to present.

- Faculty Advisor, College of Agriculture and Life Sciences Freshman Leadership Experience, transition program for Freshman students to explore opportunities in the college and university, 70-plus student members, 2009-present.

- Faculty Advisor, College of Agriculture and Life Sciences Student Ambassadors, 15 students representing college at major functions, College Tailgate, Legacy and Leadership Banquet, Evening of Merriment at Leach Teaching Gardens, Agricultural Convocation and 4-H/FFA events on campus.

- Faculty Advisor, Agriculture and Life Sciences Career Fairs, February and October each year, worked with College Career Coordinator Jennifer Ann Scasta through Fall 2018 to organize event and encourage company participation, engage academic advisors and AGLS 101 students to generate interest, fair has
grown from 33 companies and 600 student participants in Fall 2011 to 90 companies and 1400 student participants in Fall 2018.

- State/Regional Livestock Shows, involvement with San Antonio Livestock Show and Rodeo, Houston Livestock Show and Rodeo, State Fair of Texas and Rodeo Austin.

- Facilitate/coordinate on-campus workshops and competitions (4-H and FFA)
  - State FFA Career Development Events- Livestock, Meats, Poultry, Veterinary Medicine – 1000 student participants annually, 2009-present.
  - Co-Superintendent, 4-H Multi District Judging Contest Livestock judging contest – 500 student participants annually, 2009-present.
  - Texas Junior Livestock Association Camps- educational workshops for cattle, swine, sheep and goat exhibitors held at Brazos County Expo Center - 400 participants annually, 2009 to present.
  - Co-superintendent of State 4-H Round-Up Livestock Judging Contest (150 participants annually) and T.D. Tanksley Livestock Judging Invitational Contest (250 participants annually), Texas A&M University, 2009-present.
  - Presenter, Texas A&M Livestock Judging Camps– educational clinics on cattle, sheep, goats and swine judging (230 participants annually), recruitment speech for Texas A&M, 2009-present.

- Student Awards – Preparation of nomination packets for two students each year selected by the College of Agriculture and Life Sciences for the Brown-Rudder award and one packet for student nominated for the Gates-Muller Family Outstanding Student award, these are the highest honors awarded to three outstanding graduating seniors on the university-level. Stephanie Burns (ANSC, 2010), Mollie Lastovica (AGCJ, 2014), Kallie Fuchs (NUSC, 2016) and Gabrielle Lessen (BICH, 2018) were recipients of the prestigious Brown Foundation- Earl Rudder Memorial Student Award and Blayne Thompson (ALED, 2010) and Josh Sutton (FSTC, 2017) received the Gates-Muller Outstanding Student Award.

- Faculty Awards – Preparation of award packets for faculty/staff nominated by the College of Agriculture and Life Sciences Student Council for Association of Former Students College-level and University-level awards. Teaching award winners nominated by Council include: Dr. Tryon Wickersham (ANSC, 2011), Dr. Dusty Menzies (AGEC, 2012), Dr. Jennifer Williams (ALED, 2013), Dr. Clinton Allred (NUSC, 2014) and Dr. Josie Coverdale (ANSC, 2015). Association of Former Students University-level teaching award winners nominated by Council include: Dr. Kerry Litzenberg (AGEC, 2012), Dr. Tryon Wickersham (ANSC,2013), Dr. Oral Capps (AGEC, 2015) and Dr. Gary Wingenbach (ALEC, 2018) and University-level staff award winner includes Charlene Boggus (ALEC, 2013).

- Administrator, T.R. Greathouse Competitive Teams Endowment from College of Agriculture and Life Sciences Development Council, $8000 to support 20 teams, 2009 – present.

- Member, College of Agriculture and Life Sciences Academic Appeals Committee, 2010 to present.

- Co-Chairman, College of Agriculture and Life Sciences New Student Conference Program, meet with students and parents at 16 new student conferences annually and conduct College of Agriculture and Life Sciences orientation session, 2009 – present.
Texas A&M University, College of Agriculture and Life Sciences and Department of Animal Science Committees

- University Committees:
  - Member, First Year Experience Subcommittee, 2018.
  - Member, Texas A&M University Scholarship Committee, 2009-present
  - Member, Texas A&M Career Center Advisory Committee, 2009 – present.

- College Committees:
  - Chair, Search Committee for Program Director for Industry-Student Engagement, 2018.
  - Member, Search Committee for Glockzin Professorship in Poultry Science, 2018
  - Search Committee for Agricultural and Natural Resources Public Policy Internship Program Coordinator, 2016.
  - Member, Search Committee for Program Coordinator for AGLS and Regents Scholars, 2015
  - Member, Search Committee for Program Manager for Assessment, Analytics and Online Education, 2012
  - Member, Search Committee for Program Manager for Academic Operations, 2012
  - Member, Search Committee for Career Coordinator, 2011
  - Member, Search Committee for Associate Professor of Agricultural Science, 2009

- Departmental Committees:
  - Member, Search Committee for Lecturer/Livestock Judging Team Coach, 2016.
  - Member, Pearce Pavilion Users Committee, 2016 – present
  - Chair, Subcommittee on Equine Curriculum Review, 2014
  - Member, Search Committee for Instructional Assistant Professor position, 2014
  - Chair, Search Committee for Lecturer/Livestock Judging Team Coach, 2012

San Antonio Livestock Exposition Activities

- Assistant Superintendent, 4-H/FFA Livestock Judging Contest. One of the largest 4-H /FFA livestock judging contests in the country with approximately 1400 contestants on an annual basis. Responsible for class selection from sale animals, official placings, questions and livestock activities associated with contest organization, 1995 to present.
- Assistant Superintendent, Market Steer Show. The steer show consists of approximately 1500 exhibitors each year. Responsible for show management including stalling, weighing and breed classification, three days of showing and sale day organization, 2003-present
- Intern Coordinator, responsible for securing and organizing 50 student interns to work with dairy cattle, open beef cattle, junior heifer, breeding swine, open swine, market steer and market barrow shows, beef cattle skillathon, collegiate and 4-H/FFA livestock judging contests. I also assist in identifying interns for spring semester-long internships to work with the livestock show office and operations.
- Superintendent, Beef Cattle Skillathon, coordination of contest involving written test, cattle production identification exam, hands on skills activity and beef cattle industry interview, grown from 50 contestants in 2010 to 146 contestants in 2018, 2010 to present.
- Grant Proposals to fund scholarships for students in College of Agriculture and Life Sciences, 3-$14,000 scholarships and 8-$2000 Study Abroad scholarships awarded in 2017-2018 and 4-$14,000 scholarships, 8-$2000 Study Abroad scholarships and 3-$4000 Agricultural and Natural Resources Policy International Internship scholarships in 2018-2019.

University/State/National/Professional Involvement

- President, Agricultural Consortium of Texas, organization consists of all the 2-year junior colleges and 4-year universities that teach agriculture, responsible for coordination of Fall meeting at Palo Alto College in San Antonio and Spring meeting/Student competitions at Tarleton University, 2015-2016.
- Representative, Texas A&M College of Agriculture and Life Sciences to Agricultural Consortium of Texas, 2009-present.

Superintendent, Brazos Valley Fair Steer and Heifer shows, 2011-2013.

Member, Contest Organization Committee, National Senior College Livestock Judging Team Coaches Association, 1995 to present.

Chairman, American Society of Animal Science National Collegiate Livestock Judging All American Selection Committee, solicit nominations from senior colleges, typically 50-60 applications, send to 6 former Animal Science Department Heads to score, tabulate results and present awards to 10 deserving students with narrative on winners at North American Collegiate Livestock Judging Awards Breakfast in Louisville, KY, 2007 to present.

Member, Texas State FFA Career Development Events Advisory Committee, 2005 to present.

Member, National FFA Livestock Evaluation Career Development Event committee, Indianapolis, IN and Louisville, KY, 2010 to 2016.

Referee Judge, National 4-H Livestock Judging Contest Committee, North American International in Louisville, KY, 2016-present.

Member, American Society of Animal Science, 1992-present.

Member, National Selection Committee for Outstanding Teacher for American Society of Animal Science, 2009 to 2011.

Member, Sub-committee on Steer Classification, 4-H/FFA Animal Industries Committee, 2014-2015.

Member, Texas A&M Athletics Council, 2009 to 2015.

Superintendent, American Junior Simmental Association National Classic, Cattle Judging Contest, Bryan, TX, 224 contestants, July 9, 2015.

Superintendent, Texas Junior Simmental/Simbrah State Futurity Beef Cattle Judging Contest, Bryan, TX, 125 contestants annually, 2015-present.

Chairman, Texas A&M Athletics Council Eligibility Committee, 2009-2013.

Faculty Representative, Texas A&M Athletics Strategic Planning Committee, 2013-2014.


Member, Board of Directors, Ag Workers Mutual Auto Insurance, Ft. Worth, TX, 2012-present.

Member, Texas and Southwestern Cattle Raisers Association, 2005-present.

Associate Editor, Texas Journal of Agriculture and Natural Resources, 2009-present.

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**Houston Livestock Show and Rodeo**

- Superintendent, Houston Livestock Show and Rodeo Junior Market Steer Show. The steer show has approximately 1850 exhibitors on an annual basis and ranks as one of the largest and most competitive steer shows in the country. Responsible for steer show organization including stalling, weighing/breed classification, three days of showing and sale day preparations, 2000 to present.

- Superintendent, Houston Livestock Show and Rodeo Intercollegiate Livestock Judging Contests. The intercollegiate livestock judging contest is recognized as one of the major competitive national judging events with 50 teams and 350 individuals competing on an annual basis. Responsible for contest organization including contest correspondence, hotel lodging and banquet arrangements, securing livestock (12 classes) and official judges (32), transporting livestock, coaches’ dinner, contest day activities (a.m.-contest and p.m.-reasons session) and awards banquet (attendance of 500), 1993-present.

- Contest Coordinator, Houston Livestock Show and Rodeo, host two annual planning meetings with contest superintendents and Houston Livestock Show officials and officers of Judging Contest Committee for 22 contests, assist Clay Ewell with contest preparation and scoring of 14 4-H/FFA contests during show, 2009 to present.

- Member, Houston Livestock Show and Rodeo Brazos County Go Texan Planning Committee, responsible for inviting 600 HLSR scholarship recipients, speaking at event and identifying three student speakers for January scholarship dinner and benefit auction, 2009 to 2018.

- Coordinator, Houston Livestock Show and Rodeo Hide Party Student Participation, identify 25 students from Texas A&M to attend event and interact with buyers of champion steers, 2009 to 2018.
• Co-Superintendent, Houston Livestock Show and Rodeo International Agri-Summit, instruction and coordination of cattle evaluation component of program, 400 international visitors attend annually, 1995 to present.

State Fair of Texas

• Member, Scholarship Selection Committee, State Fair of Texas, award $6000, 4-year scholarships to 200-plus deserving students annually, 2008-present.
• Superintendent, State Fair of Texas Market and Prospect Steer Shows. The shows have 500 exhibitors on an annual basis. Responsible for steer show organization including stalling, weighing/breed classification, two days of showing and sale day preparations, 2009-present.
• Superintendent of Beef Cattle Skillathon, coordination of contest involving written test on cattle production, equipment/feeds/disease/breeds/EPDs, identification stations, hands on skills activity and beef cattle industry current event extemporaneous speech, 74 contestants in 2018.

Awards/Honors

• 2019 Nominee, Association of Former Students Distinguished Achievement Award for Student Relations-University Level.
• 2017 Nominee, Association of Former Students Distinguished Achievement Award for Administration-University Level.
• 2014 Texas A&M Athletics Council Delegate to Chick-fil-A Bowl, Atlanta, GA.
• 2014 Black Hawk East College Agriculture Merit Award for outstanding service in training young people for careers in agriculture, Kewanee, IL.
• 2013 Texas A&M Athletics Council Delegate to Cotton Bowl Classic, Dallas, TX.
• 2013 Texas A&M University Howdy Camp Namesake, “Fightin’ Texas Skaggies” Camp Skaggs.
• 2012 College of Agricultural Sciences and Natural Resources Distinguished Alumni, Texas Tech University
• 2011 Texas A&M Athletics Council Delegate to Meinecke Car Care Bowl, Houston, TX.
• 2011 Recipient, ING Professor of Excellence Award, awarded January 31, 2011 at TAMU vs. UT basketball game, 2 awards annually, one for football season and one for basketball season.
• 2011 Women’s Basketball Guest Coach, TAMU vs. Kansas, February 12.
• 2011 Texas A&M Athletics Council Delegate to Cotton Bowl Classic, Dallas, TX.
• 2010 Certificate of Recognition for National FFA Officer Support of Randa Braune, National FFA Convention, Indianapolis, IN
• 2007 Recipient, Outstanding Alumni Award, Texas Tech University, Department of Animal and Food Sciences
• 2006 Faculty Coordinator, National Champion Collegiate Livestock Judging Team, Texas A&M University
• 2005 Recipient, Gamma Sigma Delta Outstanding Teaching Award, Texas A&M University
• 2005 Teaching Profile, COALS Lifescapes Magazine
• 2005 Professor Profile, Aggieland Yearbook
• 2004 Faculty Coordinator, National Champion Collegiate Livestock Judging Team, Texas A&M University
• 2004 Nominee, College of Agriculture and Life Sciences, Texas A&M University Presidential Professor for Teaching Excellence Award
• 2003 Recipient, National Advising Award, NACADA at National Meeting in Dallas, Texas
• 2003 Faculty Coordinator, National Champion Collegiate Livestock Judging Team, Texas A&M University
• 2003 Nominee, College of Agriculture and Life Sciences, Texas A&M University Presidential Professor for Teaching Excellence Award
• 2002 Faculty Coordinator, National Champion Collegiate Livestock Judging Team, Texas A&M University
• 2002 Recipient, Mervin and Annette Peters Advising Award, presented by Texas A&M University Advisors and Counselors
• 2000 Vice Chancellor’s Award in Excellence for Student Counseling and Relations, Agriculture Program of Texas A&M University
• 1999 Coach, National Champion Collegiate Livestock Judging Team, Texas A&M University
• 1999 Texas A&M University Fish Camp Namesake, Camp Skaggs
• 1998 Texas A&M University Association of Former Students Distinguished Teaching Award, University level
• 1997 Haas-Litterst Outstanding Teaching Award, Animal Science Department
• 1997 Vice Chancellor’s Award of Excellence for Industry/Agency/Association Partnerships (Beef 706 Program), Agriculture Program of Texas A&M University System
• 1995 Texas A&M University Association of Former Students Distinguished Teaching Award, College level
• 1995 Texas A&M University College of Agriculture and Life Sciences NACTA Teaching Award of Merit
• 1994 Texas A&M University COALS Student Council Honor Professor Award
• 1993 Texas A&M University Center for Teaching Excellence Scholar Award

Direction of Graduate Students:
• Major Professor:
  Callie Henly/M.S. Animal Science
  Jacob Warner/M.Ag. Animal Science
  Harrison Smith/M.Ag. Animal Science
  Presley Wilson/M.Ag. Animal Science

• Committee member:
  Taylor Armstrong/M.S. ALEC
  Chelsea Holster/M.Ed. ALEC
  Quest Newberry/M.S. ANC
  Abby Christian/M.S. AGEC
  Dottie Cook/Ph.D. ALEC
  Brytann Busick/M.S. ALEC
  Keaton Dodd/ MS ANBR
Stephen B. Smith

Regents Professor and Texas A&M AgriLife Research Faculty Fellow
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.3939
sbsmith@tamu.edu

Dr. Smith obtained a B.S. degree from California State College, Bakersfield, and a Ph.D. degree from the University of California, Davis. Dr. Smith began his professional career at the U.S. Meat Animal Research Center in 1979 and joined the faculty at Texas A&M University in 1983. Dr. Smith has published a total of 202 peer-reviewed scientific articles, 17 book chapters, and 54 conference proceedings. Using Google Scholar’s h-index calculator, Dr. Smith has an h-index of 52, his scientific publications have been cited over 10,900 times, and his top 10 scientific publications have been cited over 2,500 times. For tenure-track faculty who list Animal Science, Meat Science, Reproductive Physiology, Animal Genetics, or Animal Nutrition as affiliations, Dr. Smith ranks as 14th out of 2,688 (top 0.52%).

Dr. Smith has collaborated with scientists in the U.S., Japan, Australia, South Korea, and China to document the regulation of the deposition and composition of bovine adipose tissue. He is a member of the American Meat Science Association, the American Society of Animal Science, and the American Society for Nutrition. In 1988, Dr. Smith presented the keynote address, “Growth and Development of Adipose Tissue in Livestock Species” at the International Congress of Meat Science and Technology in Brisbane, Australia, and in 1998, Dr. Smith presented “Identifying Genes of Carcass Merit” at the International Symposium for the Improvement of Meat Quality and Genetics of Hanwoo in South Korea. Over the last 35 years, Dr. Smith has been invited to present and publish 59 seminars in the U.S., Germany, Venezuela, Brazil, Australia, Japan, Korea, and China, in addition to 91 invited, unpublished seminars in the Pacific Rim countries. Dr. Smith’s laboratory was designated as National Institute of Animal Science Overseas Laboratory by the Korean Rural Development Administration (RDA), and Dr. Smith is the only non-Korean scientist to have been awarded two, three-year research grants by the Korean RDA, based on his productivity.

Dr. Smith received the American Society of Animal Science Outstanding Young Animal Scientist Award (1988), the American Society of Animal Science Growth and Development Award (1999), and the title of American Society of Animal Science Fellow (2015). Dr. Smith received the Award in Meat Research (1993) and the Distinguished Research Award (1998) from the American Meat Science Association. Dr. Smith received three Vice Chancellor’s Awards in Excellence – as a member of the Genetic Control of Beef Carcass Merit Research Team (1997), for International Programs (2003), and for Research (2017). In 2007, Dr. Smith received the Outstanding International Collaborative Research Award from Rural Development Administration, Republic of South Korea. Dr. Smith served as Editor-in-Chief for the Journal of Animal Science from 1999-2002 and was Panel Manager for the Animal Nutrition, Growth, and Lactation Program, USDA National Institute of Food and Agriculture for two consecutive years (2011 and 2012). In 2014, Dr. Smith received his highest honor, the TAMU System Regents Professor Award, and he was designated as a Faculty Fellow, Texas AgriLife Research that same year.

Dr. Smith and his wife, Dana, have a daughter, Ellen, and two sons, Ethan and Evan.
Jennifer Ann Spencer

Assistant Professor and Extension Dairy Specialist
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
1229 N. US Highway 281
Stephenville, TX  76401
254.968.4144 ext. 233
jennifer.spencer@ag.tamu.edu

Education:
University of Idaho
Moscow, ID 83843
Ph. D. Animal Physiology: Dairy Reproductive Physiology
Graduated: August, 2018

University of Idaho
Moscow, ID 83843
M.S. Animal Science: Dairy Reproductive Physiology
Graduated: December, 2014

University of Idaho
Moscow, ID, 83843
B.S. Animal Science: Pre-Veterinary Medicine & Dairy Science
Graduated: May, 2012

Work Experience:
Assistant Professor & Dairy Extension Specialist, Texas A&M AgriLife  August, 2018-Present

Research Experience:

- Ph.D. Graduate Research Assistant: Dr. Amin Ahmadzadeh (2015-2018)
  - Doses of Prostaglandin F₂α in a 5-day CIDR-Cosynch: Investigating the effects of one or two doses of prostaglandin F₂α administration at the time of artificial insemination on pregnancy rates in lactating dairy cows and suckling beef cows.
  - Aspirin and Early Embryonic Loss: Examining the effects of orally administered aspirin on pregnancy rates and early embryonic loss in lactating dairy cows when heat stressed.
  - Bovine Endometrial (BEND) Cells: Examining the effects of urea and pH on expression of bovine endometrial cell secretion of Mx1 and ISG-15 in response to the maternal recognition protein interferon-tau in vitro.

- Research Assistant: Dr. Rick Norell (2017)
  - Stray Voltage: Conducted a preliminary study at the University of Idaho Dairy Research Center (Moscow, ID) to investigate the electrical resistance of dairy cows for various standing surfaces, hair coat conditions, and the resistance of different bedding types.

- M.S. Graduate Research Assistant: Dr. Amin Ahmadzadeh (2012-2014)
  - Aspirin and Prostaglandin F₂α: Investigated the effects of oral administration of aspirin on prostaglandin F₂α and progesterone secretion in lactating dairy cows.
  - Resynchronization and Fertility: Investigated the effects of the initial gonadotropin releasing hormone injection in a 5-day CIDR-Cosynch protocol on pregnancy rate to the second insemination in lactating dairy cows.

Publications and Presentations (over 15 abstracts)

Referred Publications


**Peer-Reviewed Publications**

**Presentations**
1) National American Society of Animal Science, July 2018 in Vancouver, BC.
2) Dairy Cattle Reproductive Council (DCRC) Annual Meeting November, 2017 in Reno, NV.
3) National American Dairy Science Association, June 2017 in Pittsburgh, PA.
4) Western Section of the American Society of Animal Science (WASAS) June 2017 in Fargo, ND.
6) Northwest Agribusiness Executive Seminar February, 2016 in Stevenson, WA. Invited speaker.
7) Pacific Northwest Conference January, 2016 in Boise, ID.
8) Dairy Cattle Reproductive Council (DCRC) Annual Meeting November, 2015 in Buffalo, NY.
9) Dairy Nutrition and Management Consulting, LLC Annual Meeting October, 2015 in Vail, CO.
12) Pacific Northwest Conference October, 2013 in Coeur d’ Alene, ID.
14) Pacific Northwest Conference October, 2012 in Pasco, WA.
16) Western Regional Student Affiliate Division-American Dairy Science Association (SAD-ADSA) March 2012 in California.
17) Western Regional SAD-ADSA March, 2011 in Fresno, CA.

**Teaching Experience**

**COURSE/EVENT INSTRUCTOR or LABORATORY INSTRUCTOR**
- AVS 222: Animal Reproduction and Breeding (Spring 2018) Course Instructor
- AVS 452: Physiology of Reproduction (Fall 2016) Laboratory Instructor
- AVS 452: Physiology of Reproduction (Fall 2015) Instructor
- AVS 306: Feeds and Ration Formulation Laboratory (Spring 2015)
- Little International Competition-Dairy Showmanship Judging & Workshop (Spring 2015)
- 4-H Teen Leadership Conference (Summer 2014)
- AVS 476: Sheep Science (Spring 2014) Dr. Doumit and Mr. Colle
- Ag Days Livestock Workshop Lecture (2012 & 2013)

**Teaching Experience**

**TEACHING ASSISTANT**
- AVS 471: Animal Disease (Spring 2016)
- AVS 476: Sheep Management (Spring 2016)
- AVS 306: Feeds and Ration Formulation (Spring 2015)
• AVS 471: Animal Disease (Spring 2013)
• AVS 404: Surgical Techniques (Spring 2013)

Honors and Awards
• University of Idaho – Alumni Award for Excellence (2017)
• American Dairy Science Association, Graduate Student Division Three Minute Thesis Winner (2017)
• College of Agricultural & Life Sciences (CALS)- Gamma Sigma Delta Outstanding Ph.D. Graduate Student Award (2017)
• Graduate and Professional Student Association-Outstanding Ph.D. Graduate Student Award (2017)
• University of Idaho, Three Minute Thesis - Doctoral People’s Choice Award (2017)
• College of Agricultural & Life Sciences (CALS)-Recruitment Video (2017)
• National Milk Producers Federation-National Dairy Leadership Scholarship (2016)
• College of Agricultural & Life Sciences (CALS)-Hire a Vandal Scholarship (2016)
• Graduate Poster Competition, Pacific Northwest Conference (PNW) (1st 2012, 3rd 2013 & 2nd 2016)
• North American Colleges and Teachers of Agriculture, Outstanding Graduate Student Award (2015)
• Dairy Nutrition and Management Consulting LLC, National Essay Contest Winner (2015)
• College of Agricultural & Life Sciences (CALS)- Gamma Sigma Delta M.S. Outstanding Graduate Student Award (2014)
• Animal & Veterinary Science (AVS) Outstanding M.S. Graduate Student Award (2014)
• Outstanding Masters Research & Creativity Award runner-up (2014) University of Idaho
• Outstanding Graduate Student Teaching Award runner-up (2014), nominated (2016) College of Graduate Studies
• Recipient of Edward J. & Maude R. Iddings Fellowship College of Agricultural & Life Sciences (CALS) Competitive graduate student grant proposal (2013)
• Regional Student Affiliate Division-American Dairy Science Association (SAD-ADSA): (2011 & 2012)
  o 1st place Undergraduate Paper Presentation for Original Research (2011 & 2012)
  o Outstanding Student Award (2011)
• Recipient of Regional & National Dairy Challenge (2010-2011)
• Recipient of Undergraduate Research McNair Achievement Program (2008-2009)
• Recipient of Multicultural Scholarship CALS (2008-2012)

Grants & Fellowships: (total applied = $56,330; total received = $6,838; total pending = $0)
• Western Sustainable Agriculture Research & Education (SARE) – Graduate Student (2016, 2017)
  o Applied for the Graduate Student in 2016 for a $24,762 grant and received positive feedback.
  o Based on reviewer comments from 2016, in 2017 I adapted my grant application to increase producer involvement, and expand on the description of industry impacts. The grant was written for approximately $24,730 and entitled “Enhancing Sustainability of Animal Agriculture through Reproductive Efficiency of Dairy and Beef Cattle Operations”.
  o Supported for travel expenses to present at the 2017 National ADSA meeting in Pittsburg, PA and 2017 Western Section of ASAS in Fargo, ND ($700).
  o Supported for travel expenses to present at the 2016 National ADSA meeting in Salt Lake City, UT ($332).
  o Supported for travel expenses to present at the 2015 National ADSA meeting in Orlando, FL ($700).
- Supported for travel expenses to present at the 2014 National ADSA meeting in Kansas City, MO ($518).
- Supported for travel expenses to present at the 2013 National ADSA meeting in Indianapolis, IN ($538).

- **Graduate and Professional Student Association (GPSA) Thesis Binding Award** (2014 & 2018)
  - Award allocated towards printing and binding fees associated with Thesis submission ($50).

- **Edward J. & Maude R. Iddings Fellowship – College of Agricultural & Life Sciences:** (2013)
  - Recipient of the Iddings Fellowship for writing a competitive grant proposal ($4,000)

**Professional Activities**
- Consult for Moo Moo Farms, Phnom Penh, Cambodia (since 2015)
- North American Colleges & Teachers of Agriculture (NACTA) (member since February, 2015)
- National American Dairy Science Association (ADSA) (member since 2012)
- American Society of Animal Science (member since 2016)

**Committees**
- University of Idaho, Animal & Veterinary Science Department Department Chair Search Committee – Graduate Student Representative (2017)
- University of Idaho, Animal & Veterinary Science Department Beef/Dairy Nutritionist Faculty Search Committee – Graduate Student Representative (2014)
- University of Idaho, College of Agricultural & Life Sciences Dean Search Committee Member – Graduate Student Representative (2012)
- University of Idaho, Animal & Veterinary Science Department Tenure Committee for Dr. Gordon Murdoch (2010)

**Skills**

- **Laboratory Experience**
  - Proficient in cell culture- cultivating and harvesting cells & preparing solutions and media.
  - Proficient with Western Immunoblotting.
  - Proficient in ELISA and RIA assays.

- **Animal Care and Health**
  - Neurosurgeries- preparation, surgical and post-operative procedures as both an anesthesiologist and surgeon for catheterizing the third ventricle brain lobe.
  - Jugular and coccygeal blood sampling- sheep and cattle.
  - Trained in transrectal ultrasonography of cattle reproductive organs.
  - Drug administration- intravenous, intramuscular and oral
  - Proficient skills involving animal handling, care and behavior.

- **Consulting Experience**
  - Involved with the dairy producers of Moo Moo Farms in Phnom Penh, Cambodia since 2015.
    - Educating new producers about all aspects of a dairy operation.
    - Creating standard operating procedures, and addressing any issues that occur.
T. Matthew Taylor, Ph.D.

Associate Professor - Food Safety Microbiology
310 Kleberg Animal and Food Sciences Center
474 Olsen Boulevard
College Station, TX  77843-2471
(979) 862-7678
matt_taylor@tamu.edu

EDUCATION
Ph.D.: Food Science and Technology. Department of Food Science and Technology, The University of Tennessee-Knoxville, Knoxville, TN. December 2006.
M.S.: Food Science. Department of Food Science. NC State University, Raleigh, NC. December 2003.
B.S.: Food Science. Department of Food Science, NC State University, Raleigh, NC. May 2000.

TEACHING
- ANSC 481: Seminar.
- DASC/FSTC 326: Food Bacteriology.
- DASC/FSTC 327: Food Bacteriology Laboratory
- LCSE 002: One Health Learning Community.
- 19 Graduate degree students supervised, co-advised; 36 graduate degree committees participation.

RESEARCH ACTIVITY
- Led the development and submission of over 50 competitive research proposals to various research sponsors.
- Collaborated on research with faculty across over five departments within university, and on research involving over 15 U.S. research universities and institutions.
- Participated on over $28M in total federally funded research, leading the recruiting of $730,000.00 in USDA funding.
- Recruited $470,000 in corporate research funding.

SERVICE AND OUTREACH
University Service
- Member, Department of Animal Science Faculty
- Member, Texas A&M University Graduate Faculty
- Member, Department of Nutrition and Food Science Graduate Faculty
- Member, Department of Animal Science Graduate Curriculum Committee
- Member, Department of Animal Science Awards Committee
- Member, Department of Animal Science Meat and Dairy Science Graduate Scholarships Selection Committee
- Member, Department of Nutrition and Food Science Graduate Program Committee
- Faculty Advisor, Undergraduate Food Science Club
- University Faculty Senate, College of Agriculture and Life Sciences
- Reviewer, 2018 University Graduate Merit Fellowships
External Service and Leadership Activity
- Member, International Association for Food Protection Food Protection Trends Management Committee
- Chair, Phi Tau Sigma Food Science Honor Society Development Committee
- Member, Alpha Zeta Agriculture Honor/Service Society
- Member, Gamma Sigma Delta Agriculture Honor Society
- Member, Phi Tau Sigma Food Science Honor Society
- Member, Institute of Food Technologists
- Member, International Association for Food Protection
- Journal of Food Protection Editorial Board
- Food Protection Trends Editorial Board
- International Journal of Food Microbiology Editorial Board
- Food Microbiology Editorial Board
- Ad hoc review activity completed on 15 other peer-reviewed journals

PROFESSIONAL TRAINING AND CERTIFICATES
- Food Safety for Carriers, Sanitary Transportation of Human and Animal Food, U.S. FDA.
- Lead Trainer, Produce Safety Alliance/Association of Food and Drug Officials.
- Lead Instructor, Food Safety Preventive Controls Alliance – Preventive Controls for Human Foods.
- Food Safety Preventive Controls Qualified Individual
- Food Protection Manager, Texas Environmental Health Association/National Environmental Health Association.
- Introductory HACCP Training, International HACCP Alliance.
- Collaborated to offer 9 produce safety and food safety trainings in Texas 2017-2018 to deliver food safety training to produce industry members/stakeholders.

SELECTED REFEREED PUBLICATIONS (Within last 5 years)


Luis Orlindo Tedeschi
Professor and Texas A&M AgriLife Research Faculty Fellow
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.845.5062
luis.tedeschi@tamu.edu

EDUCATION
B.S., Agronomy Engineering, University of São Paulo, 1991
M.S., Animal and Forage Sciences, University of São Paulo, 1996
Ph.D., Animal Science, Cornell University, 2001
Postdoctorate, Ruminant Nutrition and Modeling, Cornell University, 2002

POSITIONS AND EMPLOYMENT
2005-2010 Assistant Professor, Department of Animal Science, Texas A&M University
2005-2012 Member, Intercollegiate Faculty of Nutrition, Texas A&M University
2010-2015 Associate Professor, Department of Animal Science, Texas A&M University
2012-Present Graduate Faculty, Department of Nutrition and Feed Sci., Texas A&M University
2015-Present Professor, Department of Animal Science, Texas A&M University
2017-Present Honorary Professor, Dipartimento di Scienze Agraria, University of Sassari

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS
1995-Present Member, American Society of Animal Science
1997-Present Member, Brazilian Society of Animal Science
2004-Present Member, American Registry of Professional Scientist
2005-Present Member, System Dynamic Society
2012-Present Member, Modeling Committee, National Research Support Program #9
2013-Present Member, National Academy of Science, National Research Council, Beef NRC

HONORS AND AWARDS
2011 McMaster Fellowship Award, CSIRO Livestock Industries, Australia
2012 Texas A&M AgriLife Vice Chancellor’s Award in Excellent – International Involvement
2013 J. William Fulbright Foreign Scholarship Award — Brazil and United States
2013 São Paulo Research Foundation (FAPESP) Scholarship Award – Visitor Professor, Brazil
2016 Texas A&M AgriLife Research Faculty Fellow
2017 ARPAS Diplomate of American College in Animal Nutrition (ACAN)
2017 American Feed Industry Association (AFIA) Ruminant Nutrition Award

RESEARCH
My research is focused on the integration of scientific knowledge of ruminant nutrition that has been accumulated over the years to solve contemporary problems. This integration is achieved through mathematical modeling, more specifically by adopting system dynamics techniques. System Dynamics techniques are used to build nutrition models and to understand the structure behind complex systems that is responsible for the behavior of the system under different management policies. These nutrition models can be valuable tools for solving contemporary (and future) needs related to environmental pollution and scarcity of resources (food) through the development of efficient production systems. A solution to these
problems can be achieved by accurately estimating animal requirements and nutrients derived from feeds in each unique production scenario, providing information that can be used in the decision-making process to optimize feeding systems, production efficiency, and profitability of complex animal production systems, including accounting for the interrelationships between cattle production and the environment. The complexity of nutrient management planning in reducing nutrient (e.g. P, N) and particulate matter losses from concentrated animal feeding operations requires meticulous, organized, and integrated tools that facilitate the development of comprehensive nutrient management plans to meet federal and state recommendations. Concomitantly, identification of efficient animals is important to ensure nutrients are used efficiently and environmental pollution is minimized. The development of mathematical models as decision support systems to assist producers, farmers, and consultants to ensure that animal requirements are met but not exceeded requires careful monitoring. This is known as precision feeding, matching animal production levels with the quality of the available feeds and nutrients. The main objectives of my research program are description and characterization of feeds, accountability of energy and nutrient supplied by feeds and required by animals, predictions of energy and nutrient requirements by post-weaning animals, prediction of energy and nutrient requirements of cow/calf operations, and mathematical model adequacy.

### STUDENT INVOLVEMENT

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<th>Degree</th>
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<tr>
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(1) Assistant Professor: 2005 to 2010, Associate Professor: 2010 to 2015, Professor: September 1st, 2015.

### Postdoctoral Advising: 12

### Publications

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<td>Other Types</td>
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(1) Assistant Professor: 2005 to 2010, Associate Professor: 2010 to 2015, Professor: September 1st, 2015.

### Selected Publications (out of 173):


GRANTS AND CONTRACTS

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(1) Assistant Professor: 2005 to 2010, Associate Professor: 2010 to 2015, Professor: September 1st, 2015.

CITATION INDEX

Web of Science:

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<tr>
<td>i10-index</td>
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<td>100</td>
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</tbody>
</table>
Thomas J. Welsh, Jr.

Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.845.9245
twelsh@cvm.tamu.edu

EDUCATION
  B.S., Animal Science, North Carolina State University, 1974
  Ph.D., Physiology and Biochemistry, North Carolina State University, 1980
  Postdoctorate, Reproductive Endocrinology, University of California – San Diego, 1980-83

POSITIONS/EMPLOYMENT
  - Research/Teaching Assistant, Department of Animal Science, North Carolina State University (1975-80)
  - Postdoctoral Scholar, Department of Reproductive Medicine, University of California – San Diego (1980-83)
  - Assistant Professor (1983-1988), Associate Professor (1988-96) and Professor (1996-present), Section Leader (2009-17); Department of Animal Science, Texas A&M University
  - Joint appointment: Department of Veterinary Integrative Biosciences, Texas A&M University (1989-present)

PROFESSIONAL/HONOR SOCIETIES
  - American Society of Animal Science
  - Endocrine Society
  - Society for the Study of Reproduction
  - Phi Zeta; Sigma Xi

AWARDS
  - Texas Agricultural Experiment Station Team Research, 1990
  - Southern Section American Society of Animal Science Young Animal Scientist, 1990
  - Big XII Faculty Fellow, 1998
  - Vice Chancellor’s Award for Excellence in Graduate Education, 2004
  - Vice Chancellor’s Award for Excellence in Academic Partnership (Stress Research Physiology Team), 2009
  - Texas A&M AgriLife Research Faculty Fellow, 2013
  - Southern Section American Society of Animal Science Award for Distinguished Service, 2014
  - College of Agriculture and Life Sciences Dean’s Award for Excellence in Faculty Mentorship, 2014
  - American Society of Animal Science Physiology & Endocrinology Award, 2016
  - American Society of Animal Science Research Fellow, 2018

TEACHING DUTIES AND ACTIVITIES:
  - ANSC 242 (1994-present; lead instructor) Growth & Development of Livestock
  - ANSC 481 (2000-present; lead instructor) Senior Seminar
  - ANSC 609 (1986-present; lead instructor) Physiology of Growth & Stress in Livestock
  - ANSC 630/631 (1983-present; team taught) Physiology of Reproduction
  - MSCI 602 (2000-2009; team taught) Basic Medical Physiology II
REPRESENTATIVE RECENT RESEARCH PROJECTS

- **USDA-AFRI** Randel/Welsh/Riggs/Riley 03/2018-02/2022
  *Effect of Prenatal Stress on Altered DNA Methylation and Correspondence with Gene Expression in Cattle* ($382,800 total costs); **Role: Co-Principal Investigator**

- **TAMU Triads for Transformation Cardoso/Welsh/Randel/Washburn 03/2018-02/2020
  *Developmental Programming of Health and Disease* ($35,000 total costs); **Role: Co-Principal Investigator**

- **USDA Formula Animal Health** Welsh/Somenahally/Gentry/Randel 1/2018-9/2019
  *Altering the Rumen and Fecal Microbiome to Minimize the Development and Export of Antimicrobial Resistance from Beef Cattle Systems* ($44,000 total costs); **Role: Principal Investigator**

- **USDA-AFRI** Welsh/Cardoso/Long/Randel/Riggs/Riley Pending (7/2018)
  *Health and Well-being of Beef Calves: Prenatal Stress Modulation of the Hypothalamic-Pituitary-Adrenal Axis and Telomere Length* ($457,025 total costs); **Role: Principal Investigator**

2012-2018 Peer-reviewed Journal Articles


Travis R. Whitney
Associate Professor
Department of Animal Science
Texas A&M AgriLife Research and Extension Center
7887 US Hwy 87N
San Angelo, TX 76901
325.657.7335
trwhitney@ag.tamu.edu

Education and Training
Texas A&M University, College Station. Major: Agricultural Education; (cum laude). M.S., 1999
Post-doctorate, Montana State Univ., Animal and Range Science Department, Bozeman. 2004-2005
University of Arizona, Tucson. Major: Ruminant Nutrition; Minor: Rangeland Ecology and Management;
(cum laude). Ph.D., 2004

Research and Professional Experience

Positions:
1998 – 1999: Graduate Assistant, Texas A&M University, Instructional Materials Service. Developed
Animal Production curriculum for high school students
1998 – 1999: Graduate Assistant, Texas A&M University, Center for Grazinglands and Ranch
Management.
2001 – 2004: Graduate Research and Teaching Assistant, University of Arizona, Animal Science
Department, Tucson. Performed ruminant nutrition research and guest lectured livestock
nutrition classes
2004 – 2005: Post-doctorate, Montana State University, Animal and Range Science Department,
Bozeman. Evaluated livestock grazing behavior and microbial function. Supervised two
undergraduate and two graduate students
2005 – current: Adjunct Faculty at Angelo State University (San Angelo, TX), NM State University (Las
Cruces), and Tarleton State Univ. (Stephenville, TX)
2005 – 2011: Assistant Professor, Texas AgriLife Research, San Angelo. Research leader for the
AgriLife Livestock Nutrition Program
2011 – current: Associate Professor, Texas AgriLife Research, San Angelo. Research leader for the
AgriLife Livestock Nutrition Program

Professional Activities
2002 – present Member, American Society of Animal Science (ASAS)
  Chair, Small Ruminant session (2016)
  ASAS Beef Species Section Committee (2017)
  Chair, Beef Cattle Production session (2018)
2002 – present Member, Western Section of the American Society of Animal Science
  Chair, Beef Cattle Extension Committee (2012 - 2013)
  Chair, Sheep and Goat Committee (2015-2016)
  Member, Graduate Student Competition Committee (2018)
2002 – present Member, American Registry of Professional Animal Scientists (ARPAS)
2005 – present Member, Society for Range Management: National and Texas Chapter
2006 – present Member, Southern Section of ASAS (SASAS)
- Small Ruminant Production Committee (2013 - 2016)
  - Chair (2015 - 2016)
- Resolutions Committee (2018-2020)

2007 – present  Member, Texas Sheep and Goat Raisers’ Association
2007 – present  Member, International Goat Association
2010 – present  Member, State Forage and Beef Workers’ group
2011 – 2013  Member, Forage and Livestock Internship Program in Texas: The Brazilian Connection to the Texas A&M University System.
2011 – 2014  Member, Texas A&M AgriLife Council of Principal Investigators
2012 – present  Member, Texas A&M AgriLife Agriculture Animal Care and Use Committee
2017 – present  Member, Multistate Research and Coordinating Committee and Information Exchange Group NCERA-214; Increased efficiency of sheep production
  - Secretary (2017 - 2018)
  - Chair (2018-2019)
2017 – present  Member, American Sheep Industry Association, Producer Education and Research Council Board
2017 – present  Member, Texas A&M Department of Animal Science Facility and Animal Review Committee
2017 – present  Member, Texas and Southwestern Cattle Raisers Association
  - Agricultural Research and Education Committee (2018 to present)

**Teaching Experience:**
* Have mentored 2 Ph.D., 11 M.S., and 16 undergraduate students.
* Taught animal science classes at Palo Alto Juniper college
* Guest lectured numerous classes at: University of Arizona and TX A&M University
* Delivered 70 presentations (38 invited) at National and International scientific meetings and livestock producer field days

**Grants Received (examples; not all-inclusive): Total = $645,000**
USDA Forest Service. Economic feasibility of using ground woody products in livestock diets. $120,000. PI. 2014-2016
USDA, National Sheep Industry Improvement Center. Use of ground juniper trees as a roughage source in lamb feedlot diets. $26,400. PI. 2014-2015
MidWest Veterinary Services. Field Efficacy Study of Monepantel for Control of Gastrointestinal Nematodes. $7,780. PI. 2011-2012
Texas Department of Agriculture, Food and Fibers Research Grant Program. Evaluating the use of harvested juniper and distillers dried grains in sheep and goat growing rations. $44,000. PI. 2010-2011
U.S. Department of Transportation; SUN Grant Initiative, South Central Region. Evaluation of the nutritional and feeding value of ethanol by-products for animal production. $116,000. PI. 2008-2010
Texas Corn Producers Board. Evaluation of the roughage level in kid growing rations containing DDG. $10,000. PI. 2008

**Refereed Publications (within previous 4 years; * denotes graduate student)**


**Relevant Technical Publications** (within previous 4 years; * denotes graduate student)


BioSketch

Name: Sarah H White Assistant Professor

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>END DATE MM/YYYY</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>University of Florida,</td>
<td>BS</td>
<td>05/2007</td>
<td>Animal Science and Agribusiness Management</td>
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<tr>
<td>Gainesville, FL</td>
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<tr>
<td>University of Florida,</td>
<td>MS</td>
<td>08/2010</td>
<td>Equine Nutrition</td>
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<tr>
<td>Gainesville, FL</td>
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<tr>
<td>University of Florida,</td>
<td>PHD</td>
<td>08/2014</td>
<td>Equine Nutrition and Applied Physiology and Kinesiology</td>
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<td>Gainesville, FL</td>
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<tr>
<td>University of Kentucky,</td>
<td>Postdoctoral Fellow</td>
<td>07/2016</td>
<td>Skeletal Muscle Physiology</td>
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<tr>
<td>Lexington, KY</td>
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<tr>
<td>Texas A&amp;M University,</td>
<td>Assistant Professor</td>
<td>Current</td>
<td>Equine Physiology</td>
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<tr>
<td>College Station, TX</td>
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</table>

Positions and Employment

2007 - 2008 Student Assistant, University of Florida, Gainesville, FL
2008 - 2010 Graduate Assistant, University of Florida, Gainesville, FL
2010 - 2014 Graduate Alumni Fellow, University of Florida, Gainesville, FL
2014 - 2016 Postdoctoral Scholar, UNIVERSITY OF KENTUCKY, Lexington, KY
2016 - Assistant Professor, TEXAS A&M UNIVERSITY, College Station, TX

Other Experience and Professional Memberships

2001 - Member, Arabian Horse Association
2003 - Member, United States Equestrian Federation
2007 - Member, United States Dressage Federation
2007 - Member, Equine Science Society
2007 - Member, FASS
2010 - Member, American Society of Animal Science
2016 - Member, American Physiological Society
2016 - Member, Nonruminant Nutrition Committee, American Society of Animal Science
2016 - Member, Exercise Science Committee, Equine Science Society

Honors

2007 1st place in the Nutrition Section of the Undergraduate Student Competition, Equine Science Society
2010 - 2014 Graduate School Alumni Fellowship, University of Florida
2011 1st place in the Nutrition Section of the Graduate Student Competition, Equine Science Society
2013 1st place in the Exercise Physiology Section of the Graduate Student Competition, Equine Science Society
2018 Accepted into the BIO2018: I-Corps Bio-Entrepreneurship Workshop, National Science Foundation (NSF Award #1548011)
Publications


**Additional Information: Research Support**

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<td><strong>Sarah H White (50%) and Jessica L Leatherwood</strong></td>
<td>12/01/17-12/31/18</td>
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<tr>
<td>Diamond V Mills</td>
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<td>Influence of supplementation of <a href="https://en.wikipedia.org/wiki/Saccharomyces_cerevisiae">Saccharomyces cerevisiae</a> fermentation product on inflammation in young horses</td>
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<td><strong>Sarah H White (50%) and Jessica L Leatherwood</strong></td>
<td>02/01/17-12/31/18</td>
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<td>Diamond V Mills</td>
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<td>Evaluation of the ability of <a href="https://en.wikipedia.org/wiki/Saccharomyces_cerevisiae">Saccharomyces cerevisiae</a> fermentation product supplementation to maintain gut health and immune status in mature performance horses</td>
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<td><strong>Sarah H White</strong></td>
<td>08/31/17-08/31/19</td>
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<tr>
<td>Texas A&amp;M University Department of Animal Science</td>
<td>$20,000</td>
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<tr>
<td>Profiling of muscle energetics for early prediction of equine athletic performance</td>
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<td><strong>Sarah H White (50%) and Jessica L Leatherwood</strong></td>
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<td>Texas A&amp;M University Department of Animal Science</td>
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<td>The effects of forced circular and linear exercise on joint health and inflammation in young horses</td>
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<td>Use of EconomasE to improve mitochondrial biogenesis and capacity in young performance horses</td>
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<td>United States Trotting Association</td>
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<td>Not all muscles are created equal: Delineating differences in mitochondrial number and oxidative capacity between weanling Standardbreds, Thoroughbreds, and Quarter Horses</td>
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<td>Zinpro Corporation, LLC</td>
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<td>Effect of organic trace mineral supplementation on muscle and joint health in young, exercising horses challenged with trailer stress</td>
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Tryon A. Wickersham

Associate Professor
Department of Animal Science
Texas A&M University
College Station, TX  77843-2471
979.862.7088
tryon@tamu.edu

Education

Doctor of Philosophy, Kansas State University, Manhattan, KS
  Ruminant Nutrition, June 2006
  Dissertation Title: Quantification of urea kinetics in beef cattle.

Master of Science, Kansas State University, Manhattan, KS
  Ruminant Nutrition, December 2002
  Thesis title: Effect of infusing protein postruminally with different levels of ruminal protein infusion on the utilization of low-quality grass hay by beef steers.

Bachelor of Science, Texas A&M University, College Station, TX
  Animal Science: Science Option, Cum Laude, May 1998

Experience

Associate Professor: Texas A&M University, Department of Animal Science
  September 2012 - Present
  Teach courses at both the undergraduate and graduate level in general nutrition, beef cattle production, and nutritional research methodologies while providing students with learning opportunities through their involvement in research projects. Mentor both graduate and undergraduate students interested in animal nutrition as they develop the knowledge and skills required to be successful in their future careers. Develop a research program nationally and internationally recognized in the areas of forage utilization, nitrogen metabolism, and coproduct utilization in ruminants. Secure sufficient funding to maintain a robust research program and support graduate training. Collaborate by offering research skills and knowledge to research programs across a broad array of disciplines and locations. Serve as a technical resource for extension personnel, industry stakeholders, and producers in the state of Texas and beyond. Maintain active involvement in the beef cattle industry and represent the Texas A&M System to the beef cattle industry.

Assistant Professor: Texas A&M University  September 2006 - 2012
Graduate Research Assistant: Kansas State University, June 2002 – September 2006
Research Assistant: Kansas State University, May 1998 - May 2002

Teaching Awards
  2017 – Center for Teaching Excellence Curriculum Fellow
  2014 – North American Colleges and Teachers of Agriculture Teaching Award of Merit
  2014 – Fish Camp Namesake – Camp Wickersham
  2013 – College of Agriculture and Life Sciences Dean’s Outstanding Achievement Award – Excellence in Teaching
  2013 – Association of Former Students Distinguished Achievement Award for Teaching at the University Level
  2013 – Texas A&M University College of Agriculture and Life Sciences Honor Professor
  2011 – Association of Former Students Distinguished Achievement Award for Teaching at the College Level
Summarized Graduate Student Advising

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<td>Master of Science</td>
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<td>Ph.D.</td>
<td>3</td>
<td>5</td>
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</table>

Research Awards

2016 – N.M. Early 1st Place Masters Presentation, Southern Section Animal Science Meetings, San Antonio, TX


Grants and Contracts Awarded

<table>
<thead>
<tr>
<th>Type and Role</th>
<th>Since Last Promotion</th>
<th>Career</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total $’s to all PIs</td>
<td>S’s allocated to program</td>
</tr>
<tr>
<td>External</td>
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<tr>
<td>PI</td>
<td>$454,059</td>
<td>$242,030</td>
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<tr>
<td>Co-PI</td>
<td>$309,851</td>
<td>$74,981</td>
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<tr>
<td>Total (PI + Co-PI)</td>
<td>$763,910</td>
<td>$317,011</td>
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<tr>
<td>Internal</td>
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<tr>
<td>PI</td>
<td>$85,844</td>
<td>$42,922</td>
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<tr>
<td>Co-PI</td>
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<td>$185,905</td>
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<tr>
<td>Total (PI + Co-PI)</td>
<td>$457,654</td>
<td>$228,827</td>
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<tr>
<td>Funding Total</td>
<td>$1,221,564</td>
<td>$545,838</td>
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Publications and Professional Output

Summary Table:

<table>
<thead>
<tr>
<th>Type</th>
<th>Since Appointment to Associate Professor</th>
<th>Career</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer-Reviewed</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Proceedings</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Book Chapters</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Scientific Abstracts</td>
<td>90</td>
<td>131</td>
</tr>
<tr>
<td>Non-Refereed Publ.</td>
<td>20</td>
<td>46</td>
</tr>
<tr>
<td>Popular/Industry Articles</td>
<td>21</td>
<td>25</td>
</tr>
</tbody>
</table>
Peer-Reviewed


Gary L. Williams

Professor, Regents Fellow, and Texas A&M AgriLife Research Faculty Fellow  
Department of Animal Science  
Texas A&M AgriLife Research  
3507 Highway 59E  
Beeville, TX  78102  
361.358.6390  
glwilliams@tamu.edu

Education  
B.S., Animal Science, New Mexico State University, 1972  
M.S., Animal Science (Reproductive Physiology), New Mexico State University, 1974  
Ph.D., Animal Physiology, University of Arizona, 1978

Positions and Employment  
- Scientist-in-Charge, Texas A&M AgriLife Research, Beeville, 2008-present  
- Professor and Research Leader, Animal Reproduction Laboratory, Texas A&M AgriLife Research,  
  Beeville  
- Professor, Department of Animal Science, Texas A&M University, College Station, 1989-present  
- Associate Professor and Research Leader, Animal Reproduction Laboratory, Texas A&M AgriLife  
  Research, Beeville; Associate Professor, Department of Animal Science, Texas A&M University,  
  College Station,1984-1989  
- Associate Professor, Department of Animal Science, North Dakota State University, Fargo, 1982-1984  
- Assistant Professor, Department of Animal Science, North Dakota State University, Fargo, 1978-1982

Professional Recognition and Service  
Editorships  
- Editor-in-Chief, Domestic Animal Endocrinology, 2009-2018  
- Associate Editor, Animal Growth, Physiology and Reproduction, Journal of Animal Science, 2003- 
  2007

Editorial Boards  
- Reproductive Biology and Endocrinology (e-journal),2002-2005  
- The Professional Animal Scientist, 2001-2004

Consulting Reviewer, ad hoc  
Biology of Reproduction, Reproduction, Endocrinology, Domestic Animal Endocrinology,  
Experimental Biology and Medicine, Journal of Animal Science, Comparative Biochemistry  
and Physiology, Theriogenology, Physiology and Behavior, Livestock Production Science  
Small Ruminant Research, Dukes Physiology of Domestic Animals, Pathways to Pregnancy  
and Parturition, National Institutes of Health, USDA-National Research Initiative, USDA- 
Small Business Innovative Research Program, National Science Foundation, Binational  
Agricultural Research and Development Program
National Committees, Panels and Boards
- Nominating Committee, Society for the Study of Reproduction (SSR), 2015-present
- Nominating Committee ASAS, 2005-2007
- Program Committee, Neuroendocrinology and Reproductive Cycles SSR, 2004-2005
- Academic Program Review Panel for Department of Animal Science, Office of the Provost, University of Arizona, 2003
- FASS/ARPAS Animal Care Project; On-Farm Certification, Beef Cattle; 2002-2003
- USDA-NRI/USDA-Competitive Research Grants Program, Animal Reproductive Biology
- Publications Committee, ASAS, 2002-2004
- Blue Ribbon Task Force for Improving Annual Meeting Quality, ASAS, 2003
- Communications Task Force, ASAS, 2001-2002
- Physiology and Endocrinology Program Committee, ASAS, 2001
- Local Arrangements Committee, SSR Annual Meeting, Texas A&M University, College Station, 1998
- Animal Care and Use Committee, SSR, 1994-1996
- Program Committee, Southern Section, ASAS, 1990-1991

Professional and Honorary Affiliations

Scientific Societies
- Society for the Study of Reproduction
- American Society of Animal Science
- American Registry of Professional Animal Scientists
- Endocrine Society
- Equine Science Society

Honorary Societies
- Sigma Xi Scientific Research Society
- Gamma Sigma Delta Honor Society

Professional Certification
- Registered Professional Animal Scientist (PAS)
- Diplomate, American College of Animal Physiology (now American College of Animal Science)

Honors
- Research Fellow Award, American Society of Animal Science, 2017
- Animal Physiology and Endocrinology Award, American Society of Animal Science, 2004
- Texas A&M AgriLife Research Faculty Fellow, 2004
- Regents Fellow, The Texas A&M University System, 2001
- Vice Chancellor's Award in Excellence for Individual Research, 1993
- Vice Chancellor’s Award in Excellence for Team Research, 1990

Grants and Contracts ($1,064,944; last 5 years)
USDA-AFRI, Impact of perinatal nutrition on reproductive neuroendocrine phenotype in sexually mature heifers. R.C. Cardoso and G.L. Williams, 3/1/2018 -2/28/2022, Co-PI, $500,000
USDA-AFRI, *Prenatal Control of Nutritionally-Accelerated Puberty in Heifers*, Principal Investigator, 9/1/13-8-31-17, $500,000.


**Refereed Publications/Book Chapters (last 5 years)**


Guoyao Wu

University Distinguished Professor  
Texas A&M AgriLife Senior Faculty Fellow and University Faculty Fellow  
Department of Animal Science  
Texas A&M University  
College Station, TX  77843-2471  
979.845.1817  
g-wu@tamu.edu  

EDUCATION:

B.Sc, Animal Science, South China Agricultural University, 1982  
M.Sc, Animal Nutrition, Beijing Agricultural University, 1984  
M.Sc, Animal Biochemistry, University of Alberta, 1986  
Ph.D., Animal Biochemistry, University of Alberta, 1989  
Postdoc, Nutrition & Diabetes, McGill University Medical School, 1991  
Postdoc, Biochemistry, Memorial University Medical School, St. John's, Newfoundland, Canada, 1991

PROFESSIONAL EXPERIENCE:

Assistant Professor (10/1991 – 8/1996)  
Department of Animal Science

Associate Professor (9/1996 – 8/2001)  
and Faculty of Nutrition

Professor (9/2001 – 8/2012)  
Texas A&M University

University Distinguished Professor (9/2012 –)  
Texas A&M University

(Joint appointments with the Department of Medical Physiology, 1994-present; Department of Veterinary Integrative Biosciences, 1997-present)

RESEARCH INTEREST:  
Biochemistry and nutrition of amino acids in animals

PROFESSIONAL ACTIVITIES:

Professional Society Memberships:

Member, American Association for the Advancement of Science (3/1994 to present; #20082329)  
Member, American Heart Association Vascular Biology Scientific Council (1998 to present)  
Member, American Society of Nutrition (5/1992 to present; #3462)  
Member, American Society of Animal Science (1/1993 to present; #11954)  
Member, New York Academy of Sciences (11/2013 to present; #1200069)  
Member, Sigma Xi Society, Texas A&M University Chapter (11/2017 to present)  
Member, Society for the Study of Reproduction (11/1996 to present; #007742)  
Member, World Aquaculture Society (9/2017 to present; #20170653)

Editorial Boards:

Member, Editorial Board, Journal of Nutritional Biochemistry (1/2006 – present)  
Member, Editorial Board, Journal of Animal Science and Biotechnology (1/2010 – present)  
Member, Editorial Board, Acta Nutrimenta Sinica (Chin J. Nutr. 1/2012 – present)
Member, Editorial Board, *Frontiers in Nutritional Immunology* (1/2015 – present)

**MAJOR HONORS AND AWARDS:**

Established Investigator, American Heart Association (1998).
TAES Faculty Fellow, College of Agriculture and Life Sciences, Texas A&M University (2001).
University Faculty Fellow, Texas A&M University (2002).
Distinguished Research Achievement Award, Texas A&M University (2008).
Chutian Scholar, The Department of Education, Hubei Province, P.R. China (2008).
Vice Chancellor’s Award for Excellence in Individual Research, The Texas A&M University System Agriculture Program (2009).
Texas AgriLife Senior Research Fellow, The Texas A&M University System Agriculture Program (2009).
The Samburu Collaboration Award, The International Association of Giraffe Care Professionals (2010). This award was given to the Giraffe Nutrition Workshop Team (May 25-26, 2005) whose work had saved hundreds of giraffe in zoos worldwide. Guoyao Wu was a key member of the team.
Vice Chancellor’s Award for Excellence in Diversity, The Texas A&M University System Agriculture Program (2011).
Elected Fellow, American Association for the Advancement of Science (AAAS; 2012).
Distinguished Scientist, Sigma Xi Honor Society, Texas A&M University Chapter (2013).

**SELECT PUBLICATIONS**

**Peer-reviewed Journal articles (from a total of 585 publications)**


Books:


Summary of Research Discoveries:

Over the past 27 years at Texas A&M, Dr. Wu discovered new metabolic pathways for amino acid metabolism in livestock that caused a paradigm shift in understanding of protein nutrition that fundamentally changed the course of research and practice in animal agriculture worldwide. His seminal findings include: (1) the glutamine-glutamate cycle in skeletal muscle and the role of this metabolic cycle in regulating the release of glutamine (the most abundant free α-amino acid in the blood and the whole body) from skeletal muscle; (2) novel pathways for arginine synthesis from glutamine and proline in enterocytes of the small intestine to provide endogenous arginine for maintaining whole-body homeostasis and survival; (3) the arginine-citrulline cycle in animal cells to sustain the generation of nitric oxide as a cell signaling molecule; (4) the functional urea cycle in the mammalian small intestine for the first-line detoxification of diet- and gut-derived ammonia; (5) the synthesis of polyamines from proline via proline oxidase in the small intestine and placentae to support their rapid growth; (6) the synthesis of glycine (an amino acid that is very deficient in all plant-source feedstuffs) from proline via the post-translational formation of hydroxyproline in collagen and from dietary hydroxyproline to provide endogenous glycine (the most abundant amino acid in the body) for enhancing animal growth and development; (7) arginine deficiency as a major factor limiting the maximal growth of neonates, as well as inducing hyperammonemia and death of neonates; (8) elucidation of the arginine paradox for nitric oxide synthesis in endothelial cells, which provides the biochemical basis for arginine supplementation to enhance blood flow and nutrient transport in the body; (9) unusually high abundances of the arginine-family of amino acids (arginine, glutamine, citrulline and ornithine) in the conceptus (including allantoic fluid), with arginine being nutritionally essential for placental and fetal development (including placental angiogenesis) by activating the mammalian target of rapamycin signaling pathway to stimulate protein synthesis; and (10) activation of AMP-activated protein kinase and nitric-oxide signaling pathways by arginine, which enhances the mass and function of brown adipose tissue, reduces fat accretion in white adipose tissue, and alters the partitioning of dietary energy towards lean tissue growth in animals.
Dr. Wu’s seminal discoveries have provided practical solutions to solving major problems in animal agriculture. He is among the top 1% of most cited authors in the field of agricultural sciences worldwide, as his papers have been cited more than 45,500 times in Google Scholar and with a high H-index of 108. Three of his papers have each been cited over 2,300 times.

RECENT MAJOR ACTIVE GRANTS

As PI:


United States Department of Agriculture, 4/1/2015-3/31/2019, “Regulation of water and ion transport by arginine in porcine conceptuses”, $500,000 (Grant # 2015-67015-23276).


As Co-PI:

National Institutes of Health, 9/1/2015-8/31/2020, "Understanding placental adaptation to maternal malnutrition" (PI: Dr. M. Carey. Satterfield), $1,530,000, grant #1R01HD080658-01A1.

United States Department of Agriculture, 4/01/2016 - 3/30/2020, "Arginine and secreted phosphoprotein 1 mediate cell signaling to enhance conceptus development and survival", $460,000 (PI, Dr. F.W. Bazer). Grant #2016-67015-24958.

National Institutes of Health, 1/2017 -12/2021, Training Grant "Nutrition, Biostatistics and Bioinformatics", $1,181,639 (Program Director: Dr. R.J. Carroll, Dept. of Statistics). (Account # 464036-01001).

United States Department of Agriculture, 4/01/2018 - 3/30/2022, “Roles of fructose and glucose in growth and development of ovine and porcine conceptuses”, $500,000, (PI: F. W. Bazer), Grant #505706-95720.
Jennifer Zoller
Assistant Professor and Extension Horse Specialist
Department of Animal Science
Texas A&M University
College Station, TX 77843-2471
979.862.5980
jennifer.zoller@tamu.edu

EDUCATION
Texas A&M University - 2016 - Ph.D. Animal Science – Dissertation title: Development of a mathematical model for predicting dietary energy intake to meet desired body condition parameters in exercising horses
Texas A&M University -2009 - M.S. Animal Science – Thesis title: Analysis of estrone sulphate, testosterone and cortisol concentrations around time of ejaculation and potential correlation to sexual behavior and sperm characteristics in stallions
Texas A&M University -2005 - B.S. Agricultural Development

EXPERIENCE
Current Appointment:  
January 2017 – Present  
Assistant Professor and Extension Horse Specialist, Department of Animal Science Texas A&M University, Texas A&M AgriLife Extension, College Station

Past Experience
May 2012 – December 2016: Extension Horse Program Specialist and Graduate Teaching Assistant, Department of Animal Science – Texas A&M University, Texas A&M AgriLife Extension, College Station

PROFESSIONALISM AND SERVICE
Committees and Memberships
- Houston Livestock Show Horse Judging – Asst. Superintendent (2016 – present)
- Fort Worth Livestock Show Horse Judging – Asst. Superintendent (2016-present)
- San Antonio Livestock Show Horse Judging – Asst. Superintendent (2018 – present)
- Animal Science Faculty Advisory Committee – member (2018 – present)
- State 4-H Horse Judging Contest – Superintendent (2016 – present)
- State 4-H Horse Educational Presentations – Superintendent (2016 – present)
- Equine Instructor Selection Committee (2018)

Texas A&M AgriLife Extension Funding and Programming (2017 – 2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>Corporate Support</th>
<th>Fee Based</th>
<th>Total Funding</th>
<th>Educational Programs</th>
<th>Contacts</th>
<th>Presentations</th>
<th>Social Media Posts</th>
<th>Social Media Followers</th>
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<tbody>
<tr>
<td>2017</td>
<td>$41,000</td>
<td>$152,633.75</td>
<td>$193,633.75</td>
<td>19</td>
<td>3853</td>
<td>16</td>
<td>174</td>
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<td>2018</td>
<td>$38,000</td>
<td>$157,320</td>
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Videos Produced (2017 to current) = 20; 150,141 total views

GRANTS
SCIENTIFIC PUBLICATIONS


Abstracts:

POPULAR PRESS PUBLICATIONS


Contributing Author:

EXTENSION PROGRAMS
Texas Horse Help Mobile App – (Creator and Manager) The Texas Horse Help App was developed to help new horse owners to identify resources in their area, such as lesson facilities, farriers, competitive events and more. Also many Texas horse enthusiasts are unaware of the Extension service and the educational opportunities that it offers. The app is a mobile, easily accessible point of equine education materials including print, video, and online courses. Overall the app serves as an unbiased source of information, an “Angies List” for horse owners. Development included working with Move Creative to organize the app layout and design; and inviting industry professionals to submit their information to be included in the app. Organizations were asked to publicize the information including the Texas Quarter Horse Association, Texas Paint Horse Club, American Cutting Horse Association and County Extension offices across the state. The app will remain free to users, equine professionals and events. Current funding is provided through an Animal Science Department Grant and future funding will be collected by soliciting sponsorships from equine businesses interested in extended advertising opportunities.

Texas State 4-H Horse Show – (Manager) The State 4-H Horse Show is the premiere event for youth enrolled in the Texas 4-H Horse Project. Each year this show serves over 350 youth and their families, lasts 7 days, and includes 42 classes and 2 age divisions. Also, included are educational opportunities including clinics presented by industry professionals, Vet talks, and a collegiate fair for Texas colleges with horse programs. Management responsibilities include entry review and approval, award procurement, fundraising and donor relations, development of show program, securing and managing judges, show office management, social media management, and general show support. A large part of management also includes coordinating with county extension agents and volunteers who serve on individual class committees and help the show run smoothly.

4-H Horse Validation – (Manager) Coordinate collection and review of ownership validation forms for youth in the Texas 4-H Horse Project. Validation of ownership is required for participation in the District and/or
State 4-H Horse Shows. Funds generated are used to support the 10 District Horse Shows across the state as well as the State 4-H Horse Show.

**Summer Horse Judging Camp** – (Manager) Two 3 day camps are offered each summer for youth ages 12-18 and their coaches. The camp focuses on presenting up-to-date industry instruction on halter and performance classes, and presenting oral reasons. Attendees also get the opportunity to judge live classes provided by the TAMU Equestrian Team, TAMU Stock Horse Team and local horsemen. These camps are conducted in close collaboration with the TAMU Horse Judging Team. Organization includes securing permission to host through the campus programs for minors, working with Conference and Guest Services to secure housing on campus, organizing catering for meals and securing facilities at the Hildebrand Equine Center.

- 2017 – 100 participants from Texas, West Virginia, Missouri and California
- 2018 – 98 participants from Texas, Wyoming, California, New Mexico and Minnesota

**Online Courses** – (Creator and Manager) Online courses have been created to improve education accessibility and are available through campus.extension.org. Currently available courses:

- Two horse judging courses are available. The Archives course is free and designed to be a source of information for the beginner judge. The second course, Online Horse Judging, has an extensive library of practice videos that include official placings, cuts and reasons. New material is added continuously to this course throughout the year. Video capture, editing and production are all completed by Horse specialists and graduate students.

- Stock Horse Training A to Z is a 12 part video series designed to teach basic training principles for the young stock horse prospect. Video content for this course was created by Dr. Dennis Sigler and is now managed by the current horse specialist.
March 15, 2018

TO: External Program Reviewers and Program Accreditors
FROM: Michael T. Stephenson
Vice Provost for Academic Affairs and Strategic Initiatives
RE: Information required for USDOE Accrediting Bodies

Texas A&M University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, master's, and doctoral degrees. Consistent with comprehensive standard 3.13.1, the following provides the institution’s official position on its purpose, governance, programs, degrees, diplomas, certificates, personnel, finances, and constituencies and is published in official university documents as noted.

**Purpose**

Classified by the Carnegie Foundation as a Research Doctoral University (Highest Research Activity), Texas A&M embraces its mission of the advancement of knowledge and human achievement in all its dimensions. The research mission is a key to advancing economic development in both public and private sectors. Integration of research with teaching prepares students to compete in a knowledge-based society and to continue developing their own creativity, learning, and skills beyond graduation.

The institution’s official mission statement, published both on the institution’s web page as well as in its annual university catalog, is:

> Texas A&M University (Texas A&M) is dedicated to the discovery, development, communication and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic and geographic groups, women and men alike, as it addresses the needs of an increasingly diverse population and a global economy. In the twenty-first century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

**Governance**

The governance of the institution was described in the 2012 certification of compliance submitted to SACSCOC.
Texas A&M University at College Station, the flagship institution of the Texas A&M University System, has branch campuses located in Galveston, Texas and Doha, Qatar. A ten-member Board of Regents, appointed by the Governor, directs the Texas A&M System. The appointment of each Regent follows Texas Education Code (TEC, Chapter 85, Section 21).

TEC outlines the duties and responsibilities of the Board of Regents. These responsibilities are also defined in System Policy 02.01 Board of Regents and TEC 51.352. The Board elects two officers: Chair and Vice Chair. There are four standing committees: Audit, Academic & Student Affairs, Finance, and Buildings & Physical Plant. Special committees may be appointed by the Chair with Board approval.

At Texas A&M University the President is the chief executive officer; the President is not the presiding officer of the Board of Regents. The President reports to the state-appointed Board of Regents through the Chancellor of the Texas A&M University System. System Policy 2.05 Presidents of System Member Universities defines the duties of the President. The appointment of the President follows conditions set forth in System Policy 01.03 Appointing Power and Terms and Conditions of Employment, section 2.2.

**Personnel**

The institution is led by the President and members of his cabinet:

- Michael K. Young, President
- Carol A. Fierke, Provost and Executive Vice President, Chief Academic Officer
- Jerry R. Strawser, Executive Vice President for Finance and Operations and Chief Financial Officer
- Michael Benedik, Vice Provost and Chief International Officer
- M. Dee Childs, Vice President for Information Technology and CIO
- Michael G. O’Quinn, Vice President for Government Relations
- Col Michael E. Fossum, Vice President and COO, TAMU-Galveston
- Barbara A. Abercrombie, Vice President for HR & Organizational Effectiveness
- Robin Means Coleman, Vice President and Associate Provost for Diversity
- Mark Barteau, Vice President for Research
- Carrie L. Byington, Senior Vice President TAMU Health Science Center, Dean of the College of Medicine, and Vice Chancellor for Health Services
- Daniel J. Pugh, Sr., Vice President for Student Affairs
- Joseph P. Pettibon, II, Vice President of Enrollment and Academic Services
- Gen Joe E. Ramirez, Jr. Commandant, Corps of Cadets
- Amy B. Smith, Senior Vice President and Chief Marketing and Communications Officer
- Scott Woodward, Director of Athletics
- R. C. Slocum, Special Advisor to the President
- David Batson, Sr. Associate Athletic Director, Athletic Compliance
- Shane Hinkley, Vice President of Brand Development
- Andrew P. Morris, VP of Entrepreneurship & Economic Development, Dean of the I-School

**Programs, Degrees, Diplomas, and Certificates**

See the Institutional Summary submitted to SACSCOC

**Finances**

See the Financial Profile 2017 submitted to SACSCOC
GENERAL INFORMATION

Name of Institution  Texas A&M University

Name, Title, Phone number, and email address of Accreditation Liaison
Michael T. Stephenson
Vice Provost for Academic Affairs and Strategic Initiatives
979.845.4016
mstephenson@tamu.edu

Name, Title, Phone number, and email address of Technical Support person for the Compliance Certification
Alicia M. Dorsey
Assistant Provost for Institutional Effectiveness
979.862.2918
amdorsey@tamu.edu

IMPORTANT:

Accreditation Activity (check one):

☑ Submitted at the time of Reaffirmation Orientation
☐ Submitted with Compliance Certification for Reaffirmation
☐ Submitted with Materials for an On-Site Reaffirmation Review
☐ Submitted with Compliance Certification for Fifth-Year Interim Report
☐ Submitted with Compliance Certification for Initial Candidacy/Accreditation Review
☐ Submitted with Merger/Consolidations/Acquisitions
☐ Submitted with Application for Level Change

Submission date of this completed document:  September 29, 2015
EDUCATIONAL PROGRAMS

1. Level of offerings (Check all that apply)

☐ Diploma or certificate program(s) requiring less than one year beyond Grade 12
☐ Diploma or certificate program(s) of at least two but fewer than four years of work beyond Grade 12
☐ Associate degree program(s) requiring a minimum of 60 semester hours or the equivalent designed for transfer to a baccalaureate institution
☐ Associate degree program(s) requiring a minimum of 60 semester hours or the equivalent not designed for transfer
☒ Four or five-year baccalaureate degree program(s) requiring a minimum of 120 semester hours or the equivalent
☒ Professional degree program(s)
☒ Master's degree program(s)
☒ Work beyond the master's level but not at the doctoral level (such as Specialist in Education)
☒ Doctoral degree program(s)
☐ Other (Specify) _____

2. Types of Undergraduate Programs (Check all that apply)

☐ Occupational certificate or diploma program(s)
☐ Occupational degree program(s)
☐ Two-year programs designed for transfer to a baccalaureate institution
☒ Liberal Arts and General
☒ Teacher Preparatory
☒ Professional
☐ Other (Specify) _____

GOVERNANCE CONTROL

Check the appropriate governance control for the institution:

☐ Private (check one)

☐ Independent, not-for-profit

Name of corporation OR
Name of religious affiliation and control: _____

☐ Independent, for-profit *

If publicly traded, name of parent company: _____
Public state * *(check one)*

- Not part of a state system, institution has own independent board
- Part of a state system, system board serves as governing board
- Part of a state system, system board is super governing board, local governing board has delegated authority
- Part of a state system, institution has own independent board

* If an institution is part of a state system or a corporate structure, a description of the system operation must be submitted as part of the Compliance Certification for the decennial review. See Commission policy “Reaffirmation of Accreditation and Subsequent Reports” for additional direction.

INSTITUTIONAL INFORMATION FOR REVIEWERS

**Directions:**

*Please address the following and attach the information to this form.*

1. **History and Characteristics**
   Provide a brief history of the institution, a description of its current mission, an indication of its geographic service area, and a description of the composition of the student population. Include a description of any unusual or distinctive features of the institution and a description of the admissions policies (open, selective, etc.). If appropriate, indicate those institutions that are considered peers. Please limit this section to one-half page.

2. **List of Degrees**
   List all degrees currently offered (A. S., B.A., B.S., M.A., Ph.D., for examples) and the majors or concentrations within those degrees, as well as all certificates and diplomas. For each credential offered, indicate the number of graduates in the academic year previous to submitting this report. Indicate term dates.

3. **Off-Campus Instructional Locations and Branch Campuses**
   List all locations where 50% or more credit hours toward a degree, diploma, or certificate can be obtained primarily through traditional classroom instruction. Report those locations in accord with the Commission’s definitions and the directions as specified below.

   **Off-campus instructional sites**—a site located geographically apart from the main campus at which the institution offers 50 % or more of its credit hours for a diploma, certificate, or degree. This includes high schools where courses are offered as part of dual enrollment. For each site, provide the information below. **The list should include only those sites reported and approved by SACSCOC.** Listing unapproved sites below does not constitute reporting them to SACSCOC. In such cases when an institution has initiated an off-campus instructional site as described above without prior approval by SACSCOC, a prospectus for approval should be submitted immediately to SACSCOC.
<table>
<thead>
<tr>
<th>Name of Site</th>
<th>Physical Address (street, city, state, country) Do not include PO Boxes.</th>
<th>Date Approved by SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site</th>
<th>Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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</thead>
</table>

Institutions with off-campus instructional sites at which the institution offers 25-49% credit hours for a diploma, certificate, or degree—including high schools where courses are offered as dual enrollment—are required to notify SACSCOC in advance of initiating the site. For each site, provide the information below.

<table>
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<tr>
<th>Name of Site (Indicate if site is currently active or inactive. If inactive, date of last course offerings and date of projected reopening)</th>
<th>Physical Address (street, city, state, country) Do not include PO Boxes.</th>
<th>Date Notified SACSCOC by SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs offered (specific degrees, certificates, diplomas) with 25-49% credit hours offered at each site</th>
<th>Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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</table>

Branch campus—an instructional site located geographically apart and independent of the main campus of the institution. A location is independent of the main campus if the location is (1) permanent in nature, (2) offers courses in educational programs leading to a degree, certificate, or other recognized educational credential, (3) has its own faculty and administrative or supervisory organization, and (4) has its own budgetary and hiring authority. The list should include only those branch campuses reported and approved by SACSCOC. Listing unapproved branch campuses below does not constitute reporting them to SACSCOC. A prospectus for an unapproved branch campuses should be submitted immediately to SACSCOC.

<table>
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<tr>
<th>Name of Branch Campus</th>
<th>Physical Address (street, city, state, country) Do not include PO Boxes.</th>
<th>Date Approved by SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs (specific degrees, certificates, diplomas) with 50% or more credits hours offered at the branch campus</th>
<th>Is the campus currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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</table>

4. Distance and Correspondence Education
Provide an initial date of approval for your institution to offer distance education. Provide a list of credit-bearing educational programs (degrees, certificates, and diplomas) where 50% or more of the credit hours are delivered through distance education modes. For each educational program, indicate whether the program is delivered using synchronous or asynchronous technology, or both. For each educational program that uses distance education technology to deliver the program at a specific site (e.g., a synchronous program using interactive videoconferencing), indicate the program offered at each location where students receive the transmitted program. Please limit this description to one page, if possible.

5. Accreditation

(1) List all agencies that currently accredit the institution and any of its programs and indicate the date of the last review by each.

(2) If SACS Commission on Colleges is not your primary accreditor for access to USDOE Title IV funding, identify which accrediting agency serves that purpose.

(3) List any USDOE recognized agency (national and programmatic) that has terminated the institution’s accreditation (include the date, reason, and copy of the letter of termination) or list any agency from which the institution has voluntarily withdrawn (include copy of letter to agency from institution).

(4) Describe any sanctions applied or negative actions taken by any USDOE-recognized accrediting agency (national, programmatic, SACSCOC) during the two years previous to the submission of this report. Include a copy of the letter from the USDOE to the institution.

6. Relationship to the U.S. Department of Education

Indicate any limitations, suspensions, or termination by the U.S. Department of Education in regard to student financial aid or other financial aid programs during the previous three years. Report if on reimbursement or any other exceptional status in regard to federal or state financial aid.

Document History
Adopted: September 2004
Revised: March 2011
Revised: January 2014
1. History and Characteristics

Provide a brief history of the institution, a description of its current mission, an indication of its geographic service area, and a description of the composition of the student population. Include a description of any unusual or distinctive features of the institution and a description of the admissions policies (open, selective, etc.). If appropriate, indicate those institutions that are considered peers. Please limit this section to one-half page.

**History.** Texas A&M University was established in 1871 as the state’s first public institution of higher education and opened for classes in 1876. We are now one of a select few institutions in the nation to hold land grant, sea grant (1971) and space grant (1989) designations. We are also one of few universities to host a presidential library; the George Bush Presidential Library and Museum opened in 1997. A mandatory military component was a part of the land grant designation until 1965 and today we are one of only three institutions with a full-time corps of cadets, leading to commissions in all branches of service. We have two branch campuses, one in Galveston, Texas, (established in 1962, officially merged with Texas A&M in 1991) and one in Doha, Qatar (established in 2003). In 2001 we were admitted to the Association of American Universities (AAU) and in 2004 to Phi Beta Kappa. We are classified by the Carnegie Foundation as a Research University (very high research activity).

**Mission.** Texas A&M University is dedicated to the discovery, development, communication, and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic and geographic groups as it addresses the needs of an increasingly diverse population and a global economy. In the 21st century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

**Enrollment Profile.**  
77.42% Undergraduate, 18.41% Graduate, 4.02% Professional, and 0.14% Post-Doc Certificate

**Undergraduate Students:**  
93.58% Texas Residents, 3.96% non-Texas Residents, 2.46% non-Texas, non-US Residents;  
62.41% White, 3.11% Black, 22.33% Hispanic, 6.21% Asian

**Graduate Students:**  
45.09% Texas Residents, 16.57% non-Texas Residents, 38.34% non-Texas, non-US Residents
Admissions Process. Selective. Automatic admission for Texas resident applicants in the top 10% of their high school graduating class; automatic admission for applicants who rank in the top 25% of their high school graduating class and achieve a combined (old) SAT math and SAT critical reading score of at least 1300 with a test score of at least 600 in each component, or combined (newly redesigned) SAT math and SAT evidence based reading and writing (EBRW) score of at least 1360 with a test score of at least 620 in Math and 660 in EBRW, or 30 composite on the ACT with a 27 in the math and English components; review of all other applicants based on academic potential, distinguishing characteristics, exceptional circumstances and personal achievements.

**Peer Institutions.** Georgia Institution of Technology, Ohio State University, Pennsylvania State University, Purdue University, University of California- Berkeley, Davis, Los Angeles, San Diego, University of Florida, University of Illinois – Champaign/Urbana, University of Michigan, University of Minnesota, University of North Carolina – Chapel Hill, University of Texas – Austin, and University of Wisconsin – Madison.
## 2. List of Degrees

List all degrees currently offered (A. S., B.A., B.S., M.A., Ph.D., for examples) and the majors or concentrations within those degrees, as well as all certificates and diplomas. For each credential offered, indicate the number of graduates in the academic year previous to submitting this report. Indicate term dates.

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<td>UNIVERSITY STUDIES - GALVESTON</td>
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<td>VETERINARY PUBLIC HEALTH - EPIDEMIOLOGY</td>
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3. Off-Campus Instructional Locations and Branch Campuses

List all locations where 50% or more credit hours toward a degree, diploma, or certificate can be obtained primarily through traditional classroom instruction. Report those locations in accord with the Commission’s definitions and the directions as specified below.

**Off-campus instructional sites**—a site located geographically apart from the main campus at which the institution offers 50% or more of its credit hours for a diploma, certificate, or degree. This includes high schools where courses are offered as part of dual enrollment. For each site, provide the information below. The list should include only those sites reported and approved by SACSCOC. Listing unapproved sites below does not constitute reporting them to SACSCOC. In such cases when an institution has initiated an off-campus instructional site as described above without prior approval by SACSCOC, a prospectus for approval should be submitted immediately to SACSCOC.

### Off-Campus Instructional Locations – 50% or more.

<table>
<thead>
<tr>
<th>Name of Site</th>
<th>Physical Address (street, city, state, country) Do not include PO Boxes.</th>
<th>Date Approved by SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credit hours offered at each site</th>
<th>Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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<td>Arabian Society for Human Resource Management</td>
<td>Saudi Aramco – Box 8926 Training &amp; Career Development South Administration Building, Room 242 Dhahran 31311 Saudi Arabia</td>
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<td>HUMAN RESOURCE MANAGEMENT</td>
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<td>City Centre</td>
<td>842 West Sam Houston Parkway North, Suite 200 Houston, Texas 77024-3920</td>
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<td>College of Dentistry</td>
<td>3302 Gaston Ave. Dallas, TX 75246</td>
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<td>Name of Site</td>
<td>Physical Address (street, city, state, country) Do not include PO Boxes.</td>
<td>Date Approved by SACSCOC</td>
<td>Date Implemented by the institution</td>
<td>Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site</td>
<td>Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</td>
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<td>Institute of Biosciences and Technology</td>
<td>2121 W. Holcombe Blvd. Houston, TX 77030</td>
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<td>HEALTH ADMINISTRATION MHA</td>
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<td>Rangel College of Pharmacy</td>
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<tr>
<td>College of Medicine - Temple</td>
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<td>Clinical Learning Resource Center</td>
<td>Health Professions Building 3950 North A. W. Grimes Blvd. Round Rock, TX 78665</td>
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<td>2010</td>
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<td>Texas A&amp;M University School of Law</td>
<td>1515 Commerce St Fort Worth, TX 76102</td>
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<td>JURISPRUDENCE MJ</td>
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<tr>
<td>Houston Methodist Hospital</td>
<td>6670 Bertner Avenue, R2-216 Houston, TX 77030</td>
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<td>Baylor University Medical Center</td>
<td>3500 Gaston Avenue Dallas, TX 75246</td>
<td>2012</td>
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<td>MEDICINE MD</td>
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</table>

Name of Site: Physical Address (street, city, state, country) Do not include PO Boxes.

Date Approved by SACSCOC

Date Implemented by the institution

Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site

Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)
### Off-Campus Instructional Locations – 25%-49%.

<table>
<thead>
<tr>
<th>Name of Site (Indicate if site is currently active or inactive. If inactive, date of last course offerings and date of projected reopening)</th>
<th>Physical Address (street, city, state, country) Do not include PO Boxes.</th>
<th>Date Notified SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs offered (specific degrees, certificates, diplomas) with 25-49% credit hours offered at each site</th>
<th>Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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<tr>
<td>Department of State Health Services</td>
<td>1100 West 49th Austin, TX. 78756</td>
<td>2011</td>
<td>2004</td>
<td>HEALTH POLICY &amp; MANAGEMENT - MPH</td>
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### Branch Campuses

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<th>Date Approved by SACSCOC</th>
<th>Date Implemented by the institution</th>
<th>Educational programs (specific degrees, certificates, diplomas) with 50% or more credit hours offered at the branch campus</th>
<th>Is the campus currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)</th>
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<tr>
<td>Texas A&amp;M University at Galveston</td>
<td>200 Seawolf Pkwy. Galveston, TX 77553</td>
<td>1992</td>
<td>1991</td>
<td>MARINE BIOLOGY BS OFFSHORE &amp; COASTAL SYSTEMS ENGINEER BS MARINE BIOLOGY MS MARINE BIOLOGY PHD MARINE ENGINEERING TECHNOLOGY BS MARINE FISHERIES BS MARINE RESOURCES MANAGEMENT MMR MARINE SCIENCES BS MARINE TRANSPORTATION BS MARITIME ADMINISTRATION BS MARITIME ADMINISTRATION &amp; LOGISTICS MML MARITIME STUDIES BA OCEAN AND COASTAL RESOURCES BS OCEAN ENGINEERING BS UNIVERSITY STUDIES – BS</td>
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### 4. Distance and Correspondence Education

Provide an initial date of approval for your institution to offer distance education. Provide a list of credit-bearing educational programs (degrees, certificates, and diplomas) where 50% or more of the credit hours are delivered through distance education modes. For each educational program, indicate whether the program is delivered using synchronous or asynchronous technology, or both. For each educational program that uses distance education technology to deliver the program at a specific site (e.g., a synchronous program using interactive videoconferencing), indicate the program offered at each location where students receive the transmitted program. Please limit this description to one page, if possible.

#### Initial Approval in February 2000

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<td>AGRICULTURAL EDUCATION</td>
<td>EDD</td>
<td>Synchronous course offered worldwide via PC or LMS</td>
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<td>MS</td>
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<tr>
<td>NATIONAL SECURITY AFFAIRS</td>
<td>CERT</td>
<td>College Station, TX; Livermore, CA; Sandia, NM</td>
</tr>
<tr>
<td>NONPROFIT MANAGEMENT</td>
<td>CERT</td>
<td>College Station, TX; Houston, TX</td>
</tr>
<tr>
<td>PUBLIC HEALTH</td>
<td>CERT</td>
<td>McAllen, TX</td>
</tr>
<tr>
<td>REGULATORY SCIENCE IN FOOD SYSTEMS</td>
<td>CERT</td>
<td></td>
</tr>
<tr>
<td>SAFETY ENGINEERING</td>
<td>CERT</td>
<td></td>
</tr>
<tr>
<td>APPLIED STATISTICS</td>
<td>CERT</td>
<td></td>
</tr>
</tbody>
</table>

5. Accreditation

<p>| Accreditation Council for | The pharmacy professional degree program | Last Review: April 2014 |</p>
<table>
<thead>
<tr>
<th>Pharmacy Education</th>
<th>The B.S. and M.S. curriculum in construction science</th>
<th>Last Review: 2011 (B.S.) and 2012 (M.S.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Council for Construction Education</td>
<td>The clinical psychology program in the Department of Psychology and the counseling psychology and school psychology program in the Department of Educational Psychology</td>
<td>Last Review: April/May 2015</td>
</tr>
<tr>
<td>American Psychological Association</td>
<td>The veterinary medicine degree program</td>
<td>Last Review: 2013</td>
</tr>
<tr>
<td>American Veterinary Medical Association Council on Education</td>
<td>The business baccalaureate, master’s, and doctoral programs in Mays Business School</td>
<td>Last Review: Fall 2012</td>
</tr>
<tr>
<td>Association to Advance Collegiate Schools of Business (AACSB)</td>
<td>The dietetic track in the nutritional sciences curriculum and the dietetic internship program</td>
<td>Last review: January 2015</td>
</tr>
<tr>
<td>Commission on Accreditation for Dietetics Education</td>
<td>Athletic Training (College of Education)</td>
<td>Last Review: 2013</td>
</tr>
<tr>
<td>Commission on Accreditation of Athletic Training Education (caATE)</td>
<td>The Master of Health Administration</td>
<td>Last Review: Fall 2010</td>
</tr>
<tr>
<td>Commission on Accreditation of Healthcare Management Education</td>
<td>The nursing degree programs</td>
<td>Last Review: July 2013</td>
</tr>
<tr>
<td>Commission on Collegiate Nursing Education and the Texas Board of Nursing</td>
<td>The degree programs in dentistry and dental hygiene and the certificate programs in the ten advanced dental graduate education programs</td>
<td>Last Review: August 2013</td>
</tr>
<tr>
<td>Commission on Dental Accreditation. (CODA)</td>
<td>The English Language Institute</td>
<td>Last review: 2013</td>
</tr>
<tr>
<td>Commission on English Language Program Accreditation (CEA)</td>
<td>The computer science program</td>
<td>Last review: 2010</td>
</tr>
<tr>
<td>Computing Accreditation Commission of ABET</td>
<td>Texas A&amp;M University School of Law</td>
<td>Last review: 2010</td>
</tr>
<tr>
<td>Council of the Section of Legal Education and Admissions to the Bar of the American Bar Association</td>
<td>The School of Public Health degree programs</td>
<td>Last Review: April 2011</td>
</tr>
<tr>
<td>Council on Education for Public Health</td>
<td>Undergraduate programs in aerospace, biological and agricultural, biomedical, chemical, civil, computer, electrical, industrial, mechanical, nuclear,</td>
<td>Last Review: 2010-2011 (College Station) and 2015 (Qatar)</td>
</tr>
<tr>
<td>Accrediting Agency</td>
<td>Programs Accredited</td>
<td>Most Recent Review Dates</td>
</tr>
<tr>
<td>--------------------</td>
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</tr>
<tr>
<td>Engineering Accreditation Commission of ABET</td>
<td>Ocean, petroleum and radiological health engineering</td>
<td>Last review: 2010-11</td>
</tr>
<tr>
<td>Engineering Technology Accreditation Commission of ABET</td>
<td>Maritime systems engineering (Offshore and Coastal Systems Engineering) – TAMU Galveston</td>
<td>Last Review: 2013-2014 (College Station) and 2015 (Qatar)</td>
</tr>
<tr>
<td>Engineering Technology Accreditation Commission of ABET</td>
<td>The electronic systems engineering technology program, the manufacturing and mechanical engineering technology program,</td>
<td>Last Review: 2013-14</td>
</tr>
<tr>
<td>Engineering Technology Accreditation Commission of ABET</td>
<td>Marine engineering technology – TAMU Galveston</td>
<td>Last Review: 2013-14</td>
</tr>
<tr>
<td>Forensic Science Education Programs Accreditation Commission (FEPAC)</td>
<td>The forensics and investigative sciences program</td>
<td>Last Site Visit: October 2011 (Accreditation dates: 1/2012-1/2017)</td>
</tr>
<tr>
<td>Institute of Food Technologists</td>
<td>The food science and technology curriculum</td>
<td>Last Review: December 2011</td>
</tr>
<tr>
<td>Landscape Architectural Accreditation Board</td>
<td>The curriculum in landscape architecture</td>
<td>Last Review: July 2015</td>
</tr>
<tr>
<td>Liaison Committee on Medical Education</td>
<td>The medical education degree program</td>
<td>Last Review: August 2012</td>
</tr>
<tr>
<td>National Architectural Accrediting Board</td>
<td>The curriculum in architecture</td>
<td>Last Review: March 2013</td>
</tr>
<tr>
<td>Network of Schools of Public Policy, Affairs, and Administration</td>
<td>The Master of Public Service and Administration degree in the Bush School of Government and Public Service</td>
<td>Last review: April 2014</td>
</tr>
<tr>
<td>National Recreation and Park Association</td>
<td>The curriculum in recreation, park and tourism sciences</td>
<td>Last Review: June 2010</td>
</tr>
<tr>
<td>Planning Accreditation Board</td>
<td>The Master of Urban Planning curriculum</td>
<td>Last Review: 2013</td>
</tr>
<tr>
<td>Society for Range Management</td>
<td>The curriculum in rangeland ecology and management</td>
<td>Last Review: 2006</td>
</tr>
<tr>
<td>Society of American Foresters</td>
<td>The curriculum in forestry</td>
<td>Last Review: 2013</td>
</tr>
<tr>
<td>State Board of Educator Certification Texas Education Agency</td>
<td>Programs in professional education and degrees conferred by Texas A&amp;M University</td>
<td>Last review 2011</td>
</tr>
</tbody>
</table>

(2) If SACS Commission on Colleges is not your primary accreditor for access to USDOE Title IV funding, identify which accrediting agency serves that purpose.

Not applicable.

(3) List any USDOE recognized agency (national and programmatic) that has terminated the institution’s accreditation (include the date, reason, and copy of the letter of termination) or list any agency from which the institution has voluntarily withdrawn (include copy of letter to agency from institution).
None.

(4) Describe any sanctions applied or negative actions taken by any USDOE-recognized accrediting agency (national, programmatic, SACSCOC) during the two years previous to the submission of this report. Include a copy of the letter from the USDOE to the institution.

None.

6. Relationship to the U.S. Department of Education.

Texas A&M University does not have any limitations or suspensions, nor have we been terminated by the U.S. Department of Education in regard to student financial aid or other financial aid programs during the previous three years. We are not on reimbursement nor do we have any other exceptional status in regard to federal or state financial aid.
Financial Profile 2017

Texas A&M University, College Station, TX

Total All Revenues & Other Additions (IPEDS Part B, line 25) $3,448,016,331
Instruction (IPEDS Part C line 01, Column 1) $869,772,172
Research (IPEDS Part C line 02, Column 1) $745,169,263
Public Service (IPEDS Part C line 03, Column 1) $251,228,181
Academic Support (IPEDS Part C line 05, Column 1) $301,091,516
Student Services (IPEDS Part C line 06, Column 1) $99,426,748
Institutional Support (IPEDS Part C line 07, Column 1) $114,397,808
Scholarships & Fellowships, excluding discounts & allowances (IPEDS Part C line 10, Column 1) $95,452,110
Auxiliary Enterprises (IPEDS Part C line 11, Column 1) $228,444,634
Hospital Services (IPEDS Part C line 12, Column 1) $0
Independent Operations (IPEDS Part C line 13, Column 1) $0
Other Expenses & Deductions (IPEDS Part C line 14, Column 1) $333,851,618

Financial Indicators (From Audited FY 2016 Financial Statements)

Total Assets $5,868,331,289
Total Liabilities $676,361,109
Total Unrestricted Net Assets $4,023,541,614
Expendable/Temporarily Restricted Net Assets $189,683,286
Nonexpendable/Permanently Restricted Net Assets $978,745,280
Total Revenue $2,135,725,112
Tuition and Fees, Net $563,324,692
Current Debt $84,318,326
Long-term Debt $1,355,011,877

Signatures of Verification

We certify that the information provided in the Financial Profile and Indicators is correct.

[Signatures]

Chief Executive Officer

Chief Financial Officer

Respondent (if other than CEO or CFO)

Please Mail Signed Profile Form To:
SACSCOC
Attn: Profiles
1866 Southern Lane
Decatur, GA 30033

Texas A&M University, College Station, TX 72801
MEMORANDUM

TO: Vice Presidents
    Directors Reporting to the President

SUBJECT: Delegation of Authority

To ensure that operations are unaffected when I am out of the office for extended periods of time, I hereby issue delegation of authority to the following individuals in the order they are listed. They are authorized to act on matters regarding Texas A&M University, Texas A&M University at Galveston, Texas A&M University at Qatar, Texas A&M University Health Science Center and Texas A&M University School of Law. This delegation shall be effective as of the date of execution and shall remain in effect until revoked.

1. Carol A. Fierke, Provost and Executive Vice President
2. Jerry R. Strawser, Executive Vice President and Chief Financial Officer
3. Michael G. O’Quinn, Vice President for Government Relations and Strategic Initiatives
4. Amy B. Smith, Senior Vice President, Chief Marketing and Communications Officer
5. Daniel J. Pugh, Sr., Vice President for Student Affairs
6. Barbara Abercrombie, Vice President for Human Resources and Organizational Effectiveness
7. M. Dee Childs, Vice President for Information Technology and Chief Information Officer

Tracy Cullen will know how to contact me if necessary.

Michael K. Young

cc: Mr. John Sharp
**Mission / Purpose**

Our mission is to train undergraduates about the biology, production and care of food and fiber production, and equine science. The Department of Animal Science offers dynamic and challenging undergraduate programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who are able to contribute to the industry or continue post-graduate education.

**Goals**

**G 1: Knowledge base**
Obtain a comprehensive understanding of the livestock and equine industries to include management practices, nutrition, breeding and genetics, physiology, welfare, biosecurity, and nutrient management.

**G 2: Complex Problem Solving**
Animal Science graduates will develop complex problem solving skills through critical thinking activities.

**G 3: Communication**
Animal Science graduates will build and maintain both written and oral communication skills necessary to contribute to the industry.

**G 4: Professional Development**
Enhancement of professionalism of student in order to build skills to contribute to industry.

**Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans**

**SLO 3: Communication**
Demonstrate competent written and oral communication skills.

**Relevant Associations:**

**General Education/Core Curriculum Associations:**
3 Communicate effectively

**Related Measures:**

**M 6: Satisfaction of undergraduate education**
Feedback is obtained from senior level students regarding their undergraduate education and how prepared they feel to work in the livestock or equine industry.

Source of Evidence: Exit interviews with grads/program completers

**Target:**
At least 70% of Professors teaching ANSC courses will achieve an average student evaluation rating of a 3.4 on a 4.0 scale (senior exit surveys).
Findings (2017-2018) - Target: Not Reported This Cycle
This data was not collected/analyzed for the 2017/2018 academic year.

Findings (2016-2017) - Target: Not Reported This Cycle
This data was not collected/analyzed for the 2016-2017 academic year.

Findings (2015-2016) - Target: Not Reported This Cycle
This information is not collected/analyzed this year.

Findings (2014-2015) - Target: Not Reported This Cycle
This information is not collected/analyzed this year.

Findings (2013-2014) - Target: Met
29 of 36 faculty (80.56%) teaching undergraduate Animal Science courses achieve an average student evaluation rating of 3.59 or higher on a 4.0 scale based upon senior exit surveys.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Increasing Communication Skills of Students in ANSC 402
According to our assessment data, students are meeting the set target scores in the area of communication skills but more focuse...

M 8: Supervisor Evaluation from Internship
For students who participate in an internship, they receive an evaluation from their internship supervisor.

Source of Evidence: Field work, internship, or teaching evaluation

Connected Document
• Supervisor's Evaluation of Student Performance During Internship Program

Target:
Students receive a rating of 3 (Good) on a scale of 1-4 (with 4 being Excellent) on the Supervisor Evaluation of Students Communication Skills in both Writing and Speaking.

Findings (2017-2018) - Target: Met
The supervisors evaluation of students communication skills in both speaking and writing show that 77% of students achieve a rating of 4 (Excellent) and 23% of students achieve a rating of 3 (Good). According to the evaluations, students have an Average Likert score of 3.75 (on a 4-point scale) for Communication Skills-Speaking and an Average Likert score of 3.8 (on a point scale) for Communication Skills - Writing.

Findings (2016-2017) - Target: Met
The supervisors evaluation of students communication skills in both speaking and writing show that 74% of students achieve a rating of 5 (Excellent) and 16% of students achieve a rating of 4 (Good). According to the evaluations, students have an Average Likert score of 3.75 (on a 5-point scale), for Communication Skills - Speaking and an Average Likert score of 3.76 (on a 5-point scale) for Communication Skills - Writing.
Connected Documents

- ANSC 494- Spring 2017 Interns
- ANSC 494- Fall 2016 Interns
- ANSC 494- Summer 2016 Interns

Findings (2015-2016) - Target: Met

The supervisors evaluation of students communication skills in both writing and speaking show that 72% of students achieve a rating of 4 (Excellent) and 25% of students achieve a rating of 3 (Good). According to the evaluations, students have an Average Likert score of 3.69 (on a 4-point scale) for Communication Skills - Speaking and an Average Likert score of 3.56 (on a 4-point scale) for Communication Skills - Writing.

Findings (2014-2015) - Target: Met

The supervisors evaluation of students communication skills in both writing and speaking show that 80% of students achieve a rating of 4 (Excellent) and 20% of students achieve a rating of 3 (Good).

Connected Document

- ANSC 494 - Communication 2016

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.

Increasing Communication Skills of Students in ANSC 402


According to our assessment data, students are meeting the set target scores in the area of communication skills but more focuse...

High Impact Experience Requirement

Established in Cycle: 2016-2017

Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic ouc...

SLO 4: Exposure to international livestock industry

To expand students knowledge and understanding of the impact of the animal agriculture industry on global society (economics, culture, etc.).

Relevant Associations:

- General Education/Core Curriculum Associations:
  5 Demonstrate social, cultural, and global competence
  7 Work collaboratively

Related Measures:

- M 9: Study Abroad Partipation Report
This report summarizes student enrollment in study abroad during their undergraduate career.

Source of Evidence: Activity volume

**Target:**
10% of Animal Science undergraduate students will complete an international experience.

**Findings (2017-2018) - Target: Met**
According to the survey given to graduating seniors, 23.9% (61/255) participated in an international experience during their undergraduate career.

**Connected Document**
- Study Abroad

**Findings (2016-2017) - Target: Met**
According to the survey given to graduating seniors, 16.27% (34/209) participated in an international experience during their undergraduate career.

**Connected Document**
- 2016-2017 Study Abroad Participation

**Findings (2015-2016) - Target: Met**
According to the results of the survey, 18 out of 106 Animal Science graduating students (16.98%) completed an international experience during their undergraduate career.

**Connected Document**
- Study Abroad 2015-2016

**Findings (2014-2015) - Target: Met**
According to the results of the survey, 27 out of 185 Animal Science graduating students (15%) completed an international experience during their undergraduate career.

**Connected Document**
- Study Abroad Experience

**SLO 5: Knowledge Base**
Demonstrate a comprehensive understanding of the animal agriculture industry to include management practices, nutrition, animal products, breeding and genetics, physiology, welfare, biosecurity, and nutrient management.

**Relevant Associations:**

**General Education/Core Curriculum Associations:**
1 Master the depth of knowledge required for a degree

**Related Measures:**

**M 6: Satisfaction of undergraduate education**
Feedback is obtained from senior level students regarding their undergraduate education and how prepared they feel to work in the livestock or equine industry.

Source of Evidence: Exit interviews with grads/program completers

**Target:**
"Overall, I feel that my undergraduate education prepared me for the livestock or equine industry" on ANSC 481 Seminar exit surveys. Average at least 4 on a 5-point Likert scale. (4 = agree).

**Findings (2017-2018) - Target: Not Reported This Cycle**
This data was not collected for the 2017-2018 academic year.

**Findings (2016-2017) - Target: Not Reported This Cycle**
This data was not collected for the 2016-2017 academic year.

**Findings (2015-2016) - Target: Met**
The Department of Animal Science surveys 241 students and achieves an Average Likert score of 4.3 (5-point scale) for the statement "Overall, I feel that my undergraduate education prepared me for the livestock or equine industry." This data is obtained on ANSC 481 Senior Seminar Feedback Surveys. The students taking the survey are senior level students who have completed most, if not all, of their Animal Science degree plan.

**Connected Document**
- ANSC Preparation for Industry

**Findings (2014-2015) - Target: Met**
The Department of Animal Science surveys 131 students and achieves an Average Likert score of 4.2 (5-point scale) for the statement "Overall, I feel that my undergraduate education prepared me for the livestock or equine industry." This data is obtained on ANSC 481 Senior Seminar Feedback Surveys. The students taking the survey are senior level students who have completed most, if not all, of their Animal Science degree plan.

**Connected Document**
- Senior Seminar Feedback on Undergraduate Education

**Findings (2013-2014) - Target: Met**
Average Likert score of 4.37 (5-point scale) for the statement "Overall, I feel that my undergraduate education prepared me for the livestock or equine industry" on ANSC 481 Seminar exit surveys of 87 students.

**Related Action Plans (by Established cycle, then alpha):**
For full information, see the Details of Action Plans section of this report.

**Increasing Communication Skills of Students in ANSC 402**
*Established in Cycle:* 2014-2015
According to our assessment data, students are meeting the set target scores in the area of communication skills but more focuse...

**M 8: Supervisor Evaluation from Internship**
For students who participate in an internship, they receive an evaluation from their internship supervisor.

Source of Evidence: Field work, internship, or teaching evaluation

**Connected Document**
- Supervisor's Evaluation of Student Performance During Internship Program

**Target:**
At least 80% of students receive a rating of 4 (Excellent) on a scale of 1-4 on the Supervisor Evaluation of Students Overall Skills for the Industry.

**Findings (2017-2018) - Target: Met**
Supervisors evaluate 20 students on their overall skills for the industry and 17 (85%) students receive a rating of 4 (Excellent). The students receive an overall Average Likert score of 3.85 (on a 4 point scale).

**Findings (2016-2017) - Target: Met**
Supervisors evaluate 44 students on their overall skills for the industry and 37 (84%) students receive a rating of 4 (Excellent). The students receive an overall Average Likert score of 3.8 (on a 4-point scale).

**Connected Documents**
- ANSC 494- Spring 2017 Interns
- ANSC 494- Fall 2016 Interns
- ANSC 494- Summer 2016 Interns

**Findings (2015-2016) - Target: Partially Met**
Supervisors evaluate 16 students on their overall skills for the industry and 9 (56%) students receive a rating of 4 (Excellent). However, the students receive an overall Average Likert score of 3.5 (on a 4 point scale).

**Connected Document**
- ANSC 494- Knowledge Base 2016

**Findings (2014-2015) - Target: Met**
Supervisors evaluate 22 students on their overall skills for the industry and 18 (82%) students receive a rating of 4 (Excellent).

**Connected Document**
- ANSC 494 Supervisor Evaluation for Students Knowledge Base

**Related Action Plans (by Established cycle, then alpha):**
For full information, see the Details of Action Plans section of this report.

**Internships**
*Established in Cycle: 2015-2016*
Survey findings indicate that we are not meeting the target goal for preparing students for internships. Supervisors' evaluation...
High Impact Experience Requirement
*Established in Cycle:* 2016-2017
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outc...

SLO 6: Curiosity and Lifelong Learning
Students who participate in an Animal Science Experience (internships, undergraduate research, student organizations, judging teams, study abroad experiences, etc.) will become more engaged in the Animal Science discipline and create a desire for lifelong learning.

**Relevant Associations:**

**General Education/Core Curriculum Associations:**
6 Prepare to engage in lifelong learning

**Related Measures:**

**M 3: Student Activities**
This information is obtained from an Exit Survey sent out to all Animal Science graduating seniors during the semester of graduation.

Source of Evidence: Exit interviews with grads/program completers

**Target:**
30% of students will participate in departmental/college student activities (i.e. judging teams, student organizations, etc.)

**Findings (2017-2018) - Target: Met**
We asked students to indicate their participation in Departmental/College/University student activities/organizations during their time at Texas A&M University. Of the students surveyed, 45.7% (116 out of 254 students) indicate participation in Departmental Activities/Organizations. Also, 15.3% (39 out of 255 students) participate in one or more judging teams. There are 7.1% (18 out of 255 students) who indicate participation in College Activities/Organizations. In addition, 65.1% (166 out of 255 students) indicate participation in Activities/Organizations at Texas A&M University outside of the College of Agriculture & Life Sciences.

**Connected Document**
- Student Activities

**Findings (2016-2017) - Target: Met**
Students are asked to indicate their participation in departmental/college student activities during their time at Texas A&M. Of those students surveyed, 56% (118/209) indicate participation in departmental activities/organizations. Also, 16% (34/209) participates in one or more judging teams. There are 7% (14/209) indicating participation in college organizations/activities. In addition, 63% (132/209) indicate participation in organizations/activities at Texas A&M outside of the College of Agriculture & Life Sciences.

**Connected Documents**
- 2016-2017 Department Activities/Organizations
- 2016-2017 Judging Team Participation
Findings (2015-2016) - Target: Met
55 of 106 students (52%) completing the survey indicates participation in departmental organizations/activities. Also, 17 of those 106 students (16%) participates in one or more judging teams in addition to the extracurricular activities. 12 of 106 students (11%) completing the survey indicate participation in college organizations/activities. In addition, 63 of 106 students (59%) completing the survey indicate participation in organizations/activities at Texas A&M University outside of the College of Agriculture & Life Sciences.

Connected Document
• Student Activities Participation 2015-2016

Findings (2014-2015) - Target: Met
93 of 188 students (49%) completing the survey indicates participation in departmental organizations/activities. Also, 36 of those 188 students (19%) participates in one or more judging teams in addition to the extracurricular activities. 18 of 188 students (10%) completing the survey indicate participation in college organizations/activities. In addition, 117 of 188 students (62%) completing the survey indicate participation in organizations/activities at Texas A&M University outside of the College of Agriculture & Life Sciences.

Connected Document
• Student Activity Participation

Findings (2013-2014) - Target: Met
65 of 131 students (50.0%) completing the survey indicates participation in departmental organizations/activities. Also, 22 of 64 students (34%) indicating participation in departmental organizations/activities say they participate in one or more judging teams in addition to the extracurricular activities. 18 of 127 students (14%) completing the survey indicate participation in college organizations/activities. In addition, 86 of 129 students (67%) completing the survey indicate participation in organizations/activities at Texas A&M University outside of the College of Agriculture & Life Sciences.

Findings (2013-2014) - Target: Met
65 of 131 students (50.0%) who completed the survey indicated participation in departmental organizations/activities. Also, 22 of 64 students (34%) who indicated they participate in departmental organizations/activities said they participated in one or more judging teams in addition to the extracurricular activities. 18 of 127 students (14%) who completed the survey indicated participation in college organizations/activities. In addition, 86 of 129 students (67%) who completed the survey indicated participation in organizations/activities at Texas A&M University outside of the College of Agriculture & Life Sciences.

Findings (2012-2013) - Target: Met
147 of 181 students (81.2%) enrolled in ANSC 481 Seminar indicates participation in departmental or college clubs or organizations. Also, 27 of 181 students (14.92%) enrolled in ANSC 481 Seminar participates in one or more judging teams in addition to the extracurricular activities.

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.
**Improve Internship Opportunities**

*Established in Cycle: 2017-2018*

For the 2017-18 assessment cycle all reported targets in measures and findings were met. Although we have met targets overall f...

**M 5: ANSC 485/ANSC 291/ANSC 491**

Survey of Animal Science graduating students to quantify enrollment in ANSC 485 Directed Studies, ANSC 291 Research or ANSC 491 Research during their undergraduate degree program.

Source of Evidence: Exit interviews with grads/program completers

**Target:**

At least 40% of students will participate in Directed Studies (ANSC 485) and/or take advantage of undergraduate research opportunities (ANSC 291 or 491) on or off campus during their undergraduate degree program.

**Findings (2017-2018) - Target: Met**

During the 2017-2018 academic year, 162/253 (64%) of Animal Science graduating seniors surveyed indicate they acquired research/directed studies experience through enrollment in ANSC 291, 485, and/or 491. 34 of 254 Animal Science undergraduate students (13.4%) indicate they acquired research experience through enrollment in ANSC 291-Research. 71 of 253 Animal Science undergraduate students (28.1%) indicate they acquired a directed studies experience with a professor through enrollment in ANSC 485-Directed Studies. 57 of 253 Animal Science undergraduate students (22.5%) indicate they acquired research experience through enrollment in ANSC 491-Research.

**Connected Document**

- *ANSC 485, 291, 491*

**Findings (2016-2017) - Target: Met**

During the 2016-2017 academic year, 115/209 (55%) of Animal Science graduating seniors surveyed indicate they have acquired research experience through enrollment in ANSC 291, 485 and/or 491. 25 of 209 Animal Science undergraduate students (12%) indicate they have acquired research experience through enrollment in ANSC 291-Research. 44/209 Animal Science undergraduate students (21%) indicate they have acquired research experience through enrollment in ANSC 485-Directed Studies. 46/209 Animal Science undergraduate students (22%) indicate they have acquired research experience through enrollment in ANSC 491-Research.

**Connected Document**

- *2016-2017 ANSC 291, 491, 485*

**Findings (2015-2016) - Target: Met**

51 of 106 undergraduate students (48%) of Animal Science graduating seniors surveyed indicate they have acquired research experience through enrollment in ANSC 291, 485 or 491. 5 of 106 Animal Science undergraduate students (4.72%) indicate they have acquired research experience through enrollment in ANSC 291-Research. 23 of 106 Animal Science undergraduate students (21.70%) indicate they have acquired research experience through enrollment in ANSC 485-Directed Studies. 23 of 106 Animal Science undergraduate students (21.70%) indicate they have acquired research experience through enrollment in ANSC 491-Research.
**Findings (2014-2015) - Target: Met**
118 of 189 undergraduate students (62%) of Animal Science graduating seniors surveyed indicate they have acquired research experience through enrollment in ANSC 291, 485 or 491. 23 of 190 Animal Science undergraduate students (12%) indicate they have acquired research experience through enrollment in ANSC 291 - Research. 65 of 189 Animal Science undergraduate students (34%) indicate they have acquired experience through enrollment in ANSC 485- Directed Studies. 30 of 188 Animal Science undergraduate students (16%) indicate they have acquired research experience through enrollment in ANSC 491 - Research.

**Findings (2013-2014) - Target: Met**
69 of 131 undergraduate students (52.67%) in ANSC senior seminar exit surveys indicate they have acquired research experience through enrollment in ANSC 291, 485 or 491.

**Findings (2012-2013) - Target: Met**
72 of 181 undergraduate students (39.78%) in ANSC senior seminar exit surveys indicate they have acquired research experience through enrollment in ANSC 291, 485 or 491.

**Related Action Plans (by Established cycle, then alpha):**
For full information, see the Details of Action Plans section of this report.

**High Impact Experience Requirement**
*Established in Cycle: 2016-2017*
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outc...

**M 8: Supervisor Evaluation from Internship**
For students who participate in an internship, they receive an evaluation from their internship supervisor.

Source of Evidence: Field work, internship, or teaching evaluation

**Target:**
Students receive an average rating of 3.5 on a scale of 1-4 (with 4 being Excellent) on the Supervisor Evaluation of Students in the area of Curiosity and Lifelong Learning.

**Findings (2017-2018) - Target: Met**
The supervisors evaluation of students ability to learn new operations show that 75% of students achieve a rating of 4 (Excellent) with an Average Likert score of 3.75 (on a 4 point scale).
Findings (2016-2017) - Target: Met
The supervisors evaluation of students ability to learn new operations show that 89% of students achieve a rating of 4 (Excellent) with an Average Likert score of 3.89 (on a 4-point scale).

Connected Documents
• ANSC 494- Spring 2017 Interns
• ANSC 494- Fall 2016 Interns
• ANSC 494- Summer 2016 Interns

Findings (2015-2016) - Target: Met
The supervisors evaluation of students ability to learn new operations show that 56% of students achieve a rating of 4 (Excellent) with an Average Likert score of 3.56 (on a scale of 4).

Connected Document
• ANSC 494- Curiosity and Lifelong Learning 2016

Findings (2014-2015) - Target: Met
The supervisors evaluation of students ability to learn new operations easily show that 95% of students achieve a rating of 4 (Excellent).

Connected Document
• Supervisors Evaluation for Curiosity/Lifelong Learning

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

High Impact Experience Requirement
Established in Cycle: 2016-2017
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outc...

Other Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

O/O 1: Graduate job placement
Animal Science graduates will be competitive in the job market or in securing admission to graduate or professional schools.

Relevant Associations:

General Education/Core Curriculum Associations:
4 Practice personal and social responsibility

Related Measures:

M 4: Job Placement
Graduating Senior Survey of Animal Science undergraduate students.

Source of Evidence: Exit interviews with grads/program completers
Target:
At least 60% of graduates actively seeking employment will be employed or continuing their education at the time of graduation.

Findings (2017-2018) - Target: Met
The Animal Science graduating seniors surveyed indicate 173 (67.8%) of the students are employed or continuing their education at the time of graduation. Of the 178 students seeking employment, 59 (23.3%) are employed at the time of the survey. Of the 114 students applying for admission to a professional or graduate school program, 47 (41.2%) are accepted into the program. However, there are 57 (50%) students still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey there are 75 (29.6%) students currently not seeking employment for various reasons.

Connected Document
• Job Placement

Findings (2016-2017) - Target: Not Met
The Animal Science graduating seniors surveyed indicate 100 (48%) of the students are employed or continuing their education at the time of graduation. Of the 140 students seeking employment, 32 (15%) are employed at the time of the survey. Of the 88 students applying for admission to a professional or graduate school program, 37 (42%) are accepted into the program. However, there are 44 (50%) students still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey there are 68 (33%) students currently not seeking employment for various reasons.

Connected Document
• 2016-2017 Post Graduation Status

Findings (2015-2016) - Target: Partially Met
After surveying the Animal Science graduating seniors we find that 57% of our students are employed or continuing their education at time of graduation. Of the 106 students seeking employment, 28 (26%) are employed at the time of the graduation survey. Of the 32 students applying for admission to a professional or graduate school program, 14 (44%) have been accepted. However, there are 15 (47%) students who are still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey there are 26 (25%) students currently not seeking employment for various reasons.

Connected Document
• Post-Graduation Plans 2015-2016

Findings (2014-2015) - Target: Partially Met
After surveying the Animal Science graduating seniors we found that 41% of our students are employed or continuing their education at time of graduation. Of the 129 students seeking employment, 35 (27%) are employed at the time of the graduation survey. Of the 77 students applying for admission to a professional or graduate school program, 40 (52%) have been accepted. However, there are 28 (36%) students who are still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey there are 54 (30%) students currently not seeking employment for various reasons.
Connected Document

• Animal Science Graduating Senior Job Placement

Findings (2013-2014) - Target: Partially Met
Students completing the Exit Survey for ANSC 481 Seminar indicate they have either Found Employment, Still Seeking Employment, or Currently Not Seeking Employment: 23 out of 130 students (18%) have found employment. 67 out 130 students (52%) are still seeking employment. 40 out of 130 (31%) are currently not seeking employment. 15 out of 37 students (43%) indicate they have been accepted to a professional school or graduate school program and 15 out of 37 students (41%) are still in review for admission to a professional or graduate program.

Findings (2012-2013) - Target: Partially Met
39.78% of students enrolled in ANSC 481 Seminar (72 of 181) have either secured employment or have been accepted into a graduate or professional school program. However, several students are still under review for admission to professional or graduate schools, are not graduating this semester, or are not yet actively seeking employment.

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.

Development of Survey Tool for Post-Graduates
Established in Cycle: 2011-2012
After reviewing our findings for job placement of our graduates we are seeking to increase accuracy of assessment among students...

Job Placement of Graduates
Based on the feedback we received from the graduating senior exit survey, the department must remain proactive in communicating ...

High Impact Experience Requirement
Established in Cycle: 2016-2017
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outc...

O/O 2: Internships
Increase the number of undergraduate Animal Science majors who participate in an Animal Science Experience to 20%.

Relevant Associations:

General Education/Core Curriculum Associations:
6 Prepare to engage in lifelong learning

Related Measures:

M 1: Internship Participation Survey
Survey students to measure enrollment/participation and effectiveness of ANSC 494 - Internships and/or other university-sponsored internship programs.

Source of Evidence: Field work, internship, or teaching evaluation
**Target:**
At least 40% of Animal Science undergraduate students will complete an internship by graduation.

**Findings (2017-2018) - Target: Met**
During the 2017-2018 academic year, the Animal Science Department had 50.4% (128 out of 254 surveyed) of graduating seniors indicate they completed an internship during their undergraduate career.

**Connected Document**
- [Internships](#)

**Findings (2016-2017) - Target: Met**
During the 2016-2017 academic year, the Animal Science Department had 55% (114 out of 209 surveyed) of graduating seniors indicate they had completed an internship during their undergraduate career.

**Connected Document**
- [2016-2017 Internship Participation](#)

**Findings (2015-2016) - Target: Partially Met**
66 out of 177 Animal Science graduating students (37.29%) completed an internship program during their undergraduate career. This data is collected by a survey given to all graduating students in the 2015-2016 academic year. Not all students report a completed internship if they do not receive academic credit for it.

**Connected Document**
- [Internships 2015-2016](#)

**Findings (2014-2015) - Target: Met**
78 out of 185 Animal Science graduating students (42%) completed an internship program during their undergraduate career. This data is collected by a survey given to all graduating students in the 2014-2015 academic year.

**Connected Document**
- [Internship Experience](#)

**Findings (2013-2014) - Target: Partially Met**
50 out of 130 senior Animal Science students (38%) completed an internship program during their undergraduate career. This data was collected by a survey given to all senior students in ANSC 481 -Senior Seminar.

**Findings (2012-2013) - Target: Met**
76 out of 181 senior ANSC students (41.99%) completes an internship program during their undergraduate career. This data is collected by a survey given to all senior students in ANSC 481 -Senior Seminar.

**Related Action Plans (by Established cycle, then alpha):**

For full information, see the *Details of Action Plans* section of this report.

**Internships**
*Established in Cycle: 2014-2015*
Increased emphasis will be placed on improving overall student performance during the internship. We currently use an evaluatio...
Internships
*Established in Cycle:* 2015-2016
Survey findings indicate that we are not meeting the target goal for preparing students for internships. Supervisors' evaluation...

High Impact Experience Requirement
*Established in Cycle:* 2016-2017
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outc...

**Details of Action Plans for This Cycle (by Established cycle, then alpha)**

**Development of Survey Tool for Post-Graduates**
After reviewing our findings for job placement of our graduates we are seeking to increase accuracy of assessment among students who found employment or post graduate study by developing new employment survey questions for Post Graduates. Currently, we use a survey tool for graduating students. However, several students are still under review for admission to professional or graduate schools or are not yet actively seeking employment. This post-graduate survey will be useful to gain feedback from students on suggested changes that may need to be made to our existing degree program. This information and feedback will be used to evaluate our current and upcoming new revised curriculum. We are also working with College personnel/University Career Center to develop data collection methods to track post graduate employment of our students.

**Established in Cycle:** 2011-2012
**Implementation Status:** Planned
**Priority:** High

**Relationships (Measure | Outcome/Objective):**
**Measure:** Job Placement | **Outcome/Objective:** Graduate job placement

**Implementation Description:** Increase the accuracy of assessment by collecting results from an online survey for post graduates. This will increase our knowledge of what Animal Science graduates are doing after graduation.
**Projected Completion Date:** 06/30/2018
**Responsible Person/Group:** Undergraduate Animal Science Curriculum Committee/Associate Head Academic Programs/Other interested faculty and staff may assist.

**Increasing Communication Skills of Students in ANSC 402**
According to our assessment data, students are meeting the set target scores in the area of communication skills but more focused efforts in enhancing the communication skills of our Animal Science graduates is desired. Currently we incorporate assignments in the ANSC 402-Exploring Animal Industries course to emphasize communication skills and knowledge. Students are be taught necessary skills and have an opportunity to participate in actual communication-based scenarios and interviews. However, due to the pending changes to our degree program curriculum, core courses have been identified to enhance our students learning skills. ANSC 402 is an elective course, therefore, incorporating essential communication skills throughout our core curriculum is the desired approach..

**Established in Cycle:** 2014-2015
**Implementation Status:** On-Hold
**Priority:** High

**Relationships (Measure | Outcome/Objective):**
**Measure:** Satisfaction of undergraduate education | **Outcome/Objective:** Communication | Knowledge Base
**Measure**: Supervisor Evaluation from Internship | **Outcome/Objective**: Communication

**Implementation Description**: Development/enhancement of communication skills will be achieved by identifying core courses that are "communications based" or focused.

**Projected Completion Date**: 05/31/2017

**Responsible Person/Group**: Donna Witt and Dr. Leslie Frenzel (instructor for ANSC 402)

**Internships**

Increased emphasis will be placed on improving overall student performance during the internship. We currently use an evaluation form that addresses many questions related to student learning, but the form is completed by hand and either mailed in or scanned to email. Moving the evaluation online will allow us to get more accurate data on our students and allow us to incorporate more student learning questions relating to their communication skills, work ethic, and overall knowledge of the industry. We would like to survey the employers of top companies who hire our students and ask them questions such as: How are our students communication skills? How diverse are our students in the workplace? What recommendations do you have to better educate and prepare our students for employment? Efforts will continue to find ways to better prepare our students for internships (current degree program and Animal Science Experiences (redesign degree program) and evaluate the impact this has on student performance. We have been able to hire an Instructional Assistant Professor (Start date 1 Jan 2019) who will serve as our Internship Coordinator who can provide addition support to students and faculty in enhancing our internship program.

**Established in Cycle**: 2014-2015

**Implementation Status**: In-Progress

**Priority**: Medium

**Relationships (Measure | Outcome/Objective):**

**Measure**: Internship Participation Survey | **Outcome/Objective**: Internships

**Implementation Description**: Create an online internship evaluation for supervisors to evaluate a students performance, knowledge base, and work ethic.

**Projected Completion Date**: 08/31/2019

**Responsible Person/Group**: Undergraduate Advising Office/Internship Coordinator

**Job Placement of Graduates**

Based on the feedback we received from the graduating senior exit survey, the department must remain proactive in communicating career and job opportunities for Animal Science students prior to graduation to increase the percentage of our students employed prior to or at graduation. Increased emphasis on internships is a key approach. During the current assessment cycle we did not meet our target of at least 60% of graduates actively seeking employment will be employed or continuing their education at the time of graduation. This was established in cycle: 2009-2010 The Animal Science graduating seniors surveyed indicate 100 (48%) of the students are employed or continuing their education at the time of graduation. Of the 140 students seeking employment, 32 (15%) are employed at the time of the survey. Of the 88 students applying for admission to a professional or graduate school program, 37 (42%) are accepted into the program. However, there are 44 (50%) students still in review for admission to a professional or graduate school program at the completion of the survey. Also, at the time of the survey there are 68 (33%) students currently not seeking employment for various reasons. The department will increase its efforts to communicate/distribute employment opportunities by sending email listings on our undergraduate listserv, giving announcements in Animal Science courses, encouraging participation in the College ACE Day Career Fair (recruiting fair for jobs and internships), and encouraging students to seek assistance by visiting with the Career Center. An online Job Board has been created but needs to be linked from our Department website. The department is also considering the creation of career seminars each semester to promote career and employment options for Animal Science graduates.
Implementation Status: Planned  
Priority: Medium

Relationships (Measure | Outcome/Objective):  
Measure: Job Placement  | Outcome/Objective: Graduate job placement

Implementation Description: Increasing the visibility of opportunities for students who are actively seeking employment after graduation and for students who are exploring options related to careers with an Animal Science degree.
Projected Completion Date: 01/31/2017  
Responsible Person/Group: Undergraduate Advising Office, Associate head for Academic Programs/Internship Coordinator/Other interested faculty and staff members.

Animal Science Undergraduate Curriculum Redesign
The Animal Science Undergraduate Curriculum Committee has developed new student learning outcomes for required courses, identified and begun development of new course syllabi and identified assessment touch points for our redesigned Animal Science Undergraduate Curriculum. Establishing a redesigned introductory Animal Science course and Senior Capstone Course replaces the previous assessment Action Plan milestones (ANSC 107 and ANSC 433 Honors pre and post tests) noted as "Finished." Goal is to upload new curriculum in CARS in September 2017. The undergraduate curriculum committee will develop the revised/enhanced assessment plan requirements for the redesigned curriculum which will be uploaded into WEAVEonline.

Established in Cycle: 2015-2016  
Implementation Status: In-Progress  
Priority: High  
Implementation Description: UG program revision has begin the implementation process for Fall 2018 semester.
Projected Completion Date: 06/30/2018  
Responsible Person/Group: Animal Science Undergraduate Curriculum Committee

Internships
Survey findings indicate that we are not meeting the target goal for preparing students for internships. Supervisors’ evaluation of students participating in internships is not as good as expected. Student preparation must include encouragement (or requirement) to attend workshops at the Career Center that focuses on professionalism, interview skills and dress, resume writing, and various other topics. Previous efforts to encourage participation in internships resulted in a zero credit hour option for students to enroll in the ANSC 494-Internship allows students to participate in internships without having to sign up for academic credit. The Animal Science advising staff will continue to work with students to encourage them to pursue internships by working with individual students on their degree plans and incorporating appropriate internships into their academic plan. The newly revised core curriculum (pending submission to CARS) requires all ANSC students to have an Animal Science Experiences which includes but is not limited to - internships.

Established in Cycle: 2015-2016  
Implementation Status: Planned  
Priority: High  

Relationships (Measure | Outcome/Objective):  
Measure: Internship Participation Survey  | Outcome/Objective: Internships  
Measure: Supervisor Evaluation from Internship  | Outcome/Objective: Knowledge Base

Implementation Description: Student Participation & Supervisor Evaluation in ANSC 494 - Internship
Knowledge Based Test for Animal Science courses
In past assessment cycles, we evaluated students' knowledge in the honors section of ANSC 433 - Reproduction of Farm Animals by administering a Pre-Test at the beginning of the semester and a Post-Test at the end of the semester. This was not an accurate representation of our student population. Our plan is to administer a knowledge based test to all of the students who enroll in ANSC 433 and communicate with students on where they are deficient. In addition, we can look at administering a Pre-Test and a Post-Test to the ANSC 107-Introduction to Animal Science course which will evaluate Animal Science and non-Animal Science students. The pre-test will show areas for student learning and the post-test data will be shared with students to show deficiencies.

Established in Cycle: 2015-2016
Implementation Status: Finished
Priority: Medium
Implementation Description: The Department of Animal Science will administer a Knowledge Based Test for ANSC 433 and ANSC 107.
Projected Completion Date: 11/30/2017
Responsible Person/Group: Donna Witt and various faculty members.

High Impact Experience Requirement
Based on the analysis of our findings, we have met our targets for all learning outcomes. We have not met our programmatic outcome to increase employment rates for our graduating seniors. We believe that giving students more real work experience will not only make them more employable, but will enhance learning in the areas of industry knowledge (SLO4) and curiosity/lifelong learning (SLO6). Therefore, we plan to revise curriculum to include a required Animal Science Experience that includes, internships, research, work and/or Study Abroad experiences. Based on previous evaluation surveys we continue to offer these future Animal Science Experiences and current internships with a zero credit hour course option. The desired endstate is to increase student participation in these experiences and help students enhance learning through high-impact experiences. The academic advisors will be more proactive in discussing how an internship can fit into a student's degree plan and assist the student by providing suggestions on possible internships relating to the students career plans.

Established in Cycle: 2016-2017
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
- Measure: ANSC 485/ANSC 291/ANSC 491 | Outcome/Objective: Curiosity and Lifelong Learning
- Measure: Internship Participation Survey | Outcome/Objective: Internships
- Measure: Job Placement | Outcome/Objective: Graduate job placement
- Measure: Supervisor Evaluation from Internship | Outcome/Objective: Communication | Curiosity and Lifelong Learning | Knowledge Base

Implementation Description: Implementation of our redesigned curriculum begins Fall 2018. New SLOs and rubric have been designed that align with university outcomes and increase our focus on key knowledge skills and competencies our students should possess. It also allows for us to better assess our ability to educate and train our students. An animal science experience - internships, HIL, etc. are required for our majors.
Projected Completion Date: 08/31/2020
Responsible Person/Group: Undergraduate Program Committee, Associate Head Academic Programs
**Improve Internship Opportunities**

For the 2017-18 assessment cycle all reported targets in measures and findings were met. Although we have met targets overall for the UG program in total there is an opportunity to improve internship opportunities for our ANSC degree program students and those in the equine science and meat science certificate programs. This is important as we develop curiosity and lifelong learning among our students. The revised curriculum requires all majors to have at least one Animal Science Experience (Internships, Study Abroad, Undergraduate research, Judging teams, etc). This will require ~ 300 experiences to be made available to our students per year (1250 majors - Fall 2018). This requirement places more pressure on finding suitable internship positions for our students. The challenges that exist are: lack of assigning a specific certificate program director, opportunity for enhanced support/coordination from the respective faculty to assist the internship coordinator with identifying internship opportunities for planning/scheduling. The hiring of an Instructional Assistant Professor who primary duties to coordinate the internship program (January 1, 2019) with additional support from faculty and the Associate Head Academic Programs should improve our certificate program assessment results and allow us to sustain/improve our current overall UG program internship targets.

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<th>Established in Cycle:</th>
<th>2017-2018</th>
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<td>Implementation Status:</td>
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**Relationships (Measure | Outcome/Objective):**

- **Measure:** Student Activities
- **Outcome/Objective:** Curiosity and Lifelong Learning

**Analysis Questions and Analysis Answers**

Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?

For the 2017-18 assessment cycle all reported targets in measures and findings were met. Although we have met targets overall for the UG program in total there is an opportunity to improve internship opportunities for our ANSC degree program students and those in the equine science and meat science certificate programs. The revised curriculum requires all majors to have at least one Animal Science Experience (Internships, Study Abroad, Undergraduate research, Judging teams, etc). This will require ~ 300 experiences to be made available to our students per year (1250 majors - Fall 2018). This requirement places more pressure on finding suitable internship positions for our students. The challenges that exist are: lack of assigning a specific certificate program director, opportunity for enhanced support/coordination from the respective faculty to assist the internship coordinator with identifying internship opportunities for planning/scheduling. The hiring of an Instructional Assistant Professor who primary duties to coordinate the internship program (January 1, 2019) with additional support from faculty and the Associate Head Academic Programs should improve our certificate program assessment results and allow us to sustain/improve our current overall UG program internship targets.

Measure 1: Internship Participation Survey

Outcome/Objective 2: Internships Goal 4 Professional Development Target At least 40% of Animal Science undergraduate students will complete an internship by graduation. Measure 3: Student Activities Outcome/Objective 6: Curiosity and Lifelong Learning Goal 1 Knowledge base 2 Complex Problem Solving 4 Professional Development Target 30% of students will participate in departmental/college student activities (i.e. judging teams, student organizations, etc.) Measure 4: Job Placement Outcome/Objective 1: Graduate job placement Goal 1 Knowledge base 2 Complex Problem Solving 3 Communication 4 Professional Development Target At least 60% of graduates actively seeking employment will be employed or continuing their education at the time of graduation. Measure 5: ANSC 485/ANSC 291/ANSC 491 Outcome/Objective 6: Curiosity and Lifelong Learning Goal 1 Knowledge base 2 Complex Problem Solving 4 Professional Development
Target: At least 40% of students will participate in Directed Studies (ANSC 485) and/or take advantage of undergraduate research opportunities (ANSC 291 or 491) on or off campus during their undergraduate degree program. Measure 8: Supervisor Evaluation from Internship Outcome/Objective 3: Communication Goal 3 Communication Target: Students receive a rating of 3 (Good) on a scale of 1-4 (with 4 being Excellent) on the Supervisor Evaluation of Students Communication Skills in both Writing and Speaking. Measure 9: Study Abroad Participation Report Outcome/Objective 4: Exposure to international livestock industry Goal 4 Professional Development Target: 10% of Animal Science undergraduate students will complete an international experience. This assessment cycle, we also identified that the department must improve its ability to collect essential assessment data. The implementation of our revised UG curriculum has provided program learning outcomes and more specific student learning outcomes to aid in assessment. Currently the department is working with the Center for Teaching Excellence to develop our new assessment plan for the revised UG curriculum. The ANSC Undergraduate Program Committee is designated as the responsible entity for development and implementation of the assessment plan, the collection of data and assessment reporting.

*CRITICAL* Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.

In progress action plans include: Animal Science Undergraduate Curriculum Redesign. The Animal Science Undergraduate Curriculum Committee has developed new program learning outcomes and specific student learning outcomes for required degree courses, and identified assessment touch points for our redesigned Animal Science Undergraduate Curriculum. Currently the department is working with the Center for Teaching Excellence to develop our new assessment plan for the revised UG curriculum. The ANSC Undergraduate Program Committee is designated as the responsible entity for development and implementation of the assessment plan, the collection of data and assessment reporting. The challenge is ensuring that the assessment plan is effectively implemented. Since the new curriculum has just begun the implementation process there is no assessment results for the targeted outcomes the action plans were designed to address. However, the assessment plan development process and implementation is a significant step forward that should allow us to see future improvement.
Mission / Purpose

The Undergraduate Certificate in Equine Science is designed to provide specialized instruction and training in equine science. The certificate program is designed to prepare ANSC undergraduate students for a variety of careers in the equine industry. The objective of the certificate program is to provide students with a core set of essential skills, knowledge and competencies sought by the equine industry.

Goals

**G 1: Development of Technical Expertise**

Students participating in the equine certificate program will develop an expanded knowledge base, advanced skills and competencies in equine behavior and training, nutrition, health, reproduction and management. Students must participate in one Animal Science Experience (internship or research experience).

**G 2: Student Employment Rate**

Equine certificate program students will be tracked to collect data (via established ANSC undergraduate student survey assessment) on employment in the equine industry.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

**SLO 1: Develop Expertise**

Development of Equine Skills, Competencies and Expertise

**Related Measures:**

**M 1: Internship Evaluation**

Students pursuing the Equine Science certificate will received an evaluation from their internship supervisor.

Source of Evidence: Field work, internship, or teaching evaluation

**Target:**

80% of students pursuing the Equine Science certificate will achieve a supervisor evaluation of satisfactory or better.

**Findings (2017-2018) - Target: Met**

Based on the ANSC 2017-18 survey of graduating seniors, 24 students completed the requirements for the Equine certificate. Based on internship supervisor evaluations, over 85% conducted an internship with over 95% received satisfactory (or higher) rating from their internship supervisor.

**M 2: Internships**

Equine certificate students are required to have at least one internship.

Source of Evidence: Field work, internship, or teaching evaluation
Target:
100% of equine certificate students will conduct an internship experience with 100% "met standards" and 50% achieving "exceeded standards" for supervisor evaluations.

Findings (2017-2018) - Target: Partially Met
Based on the ANSC 2017-18 survey of graduating seniors, over 85% (21/24) conducted an internship. Of those students who completed an internship, 100% received a satisfactory (or higher) rating from their internship supervisor.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Student expertise and employment
Established in Cycle: 2016-2017
Equine certificate students will be exposed to internship opportunities through undergraduate advising and internship coordinato...

M 4: Equine Knowledge
Students completing the Equine Certificate Program will increase their knowledge and skills in equine science.

Source of Evidence: Exit interviews with grads/program completers

Target:
Students completing the Equine Certificate will improve their knowledge and skills in equine science by 50%.

Findings (2017-2018) - Target: Met
Based on ANSC 2017-18 survey of graduating seniors, over 50% indicated that their knowledge improved in the areas of equine behavior and training; nutrition; health; reproduction; management; written and oral communication.

SLO 2: Employment Rate
Employment rate of students completing the equine certificate program as evidenced by mastery of equine science knowledge/technical expertise.

Related Measures:

M 1: Internship Evaluation
Students pursuing the Equine Science certificate will received an evaluation from their internship supervisor.

Source of Evidence: Field work, internship, or teaching evaluation

Target:
50% of students completing the Equine Science certificate will gain employment in the equine industry or equine related field.

Findings (2017-2018) - Target: Partially Met
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 33% (8) of the students completing the equine certificate program (24 total) gained employment in the equine industry or related field.

Related Action Plans (by Established cycle, then alpha):
For full information, see the *Details of Action Plans* section of this report.

**Improve employment rate for equine certificate students**  
*Established in Cycle: 2017-2018*  
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 33% (8) of the students completing the equi...

**M 2: Internships**  
Equine certificate students are required to have at least one internship.  
Source of Evidence: Field work, internship, or teaching evaluation  

**Target:**  
50% of equine certificate students will find employment in the equine industry.

**Findings (2017-2018) - Target: Partially Met**  
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 33% (8) of the students completing the equine certificate program (24 total) gained employment in the equine industry or related field.

**Related Action Plans (by Established cycle, then alpha):**  
For full information, see the *Details of Action Plans* section of this report.

**Student expertise and employment**  
*Established in Cycle: 2016-2017*  
Equine certificate students will be exposed to internship opportunities through undergraduate advising and internship coordinato...

**SLO 3: Communication skills**  
Students pursuing the Equine Science certificate will display satisfactory competency in communication skills (written and oral).  

**Related Measures:**

**M 3: Communication**  
Equine Science certificate students will demonstrate sufficient communication skills (oral/written) to adequately convey equine science knowledge and/or expertise.

Source of Evidence: Presentation, either individual or group  

**Target:**  
80% of Equine Science certificate students will achieve a score of 75% or higher in oral/written communication skills has evidenced by performance during individual and/or team projects/presentations.

**Findings (2017-2018) - Target: Partially Met**  
Based on the ANSC 2017-18 survey of graduating seniors 54.17% indicated they had improved their written communication skills, while 62.50% indicated they had improved their oral communication skills. It is noted that this assessment data is based on student self reporting while our target references faculty scoring of observed performance on a team or presentation. Efforts will be made to collect data on certificate program student performance on a team or individual presentation for inclusion in next year's assessment cycle.
**Related Action Plans (by Established cycle, then alpha):**

For full information, see the *Details of Action Plans* section of this report.

**Improving communication skills**
*Established in Cycle: 2017-2018*
Based on the ANSC 2017-18 survey of graduating seniors 54.17% indicated their
had improved their written communication skills, w...

**M 4: Equine Knowledge**

Students completing the Equine Certificate Program will increase their knowledge and skills in
equine science.

Source of Evidence: Exit interviews with grads/program completers

**Target:**

Students completing the Equine Certificate will improve their written and oral
communication skills in equine science by 50%.

**Findings (2017-2018) - Target: Met**

Based on ANSC 2017-18 survey of graduating seniors, over 50% of students
completing the equine certificate indicated that their written (54.17%) and oral
(62.50%) skills improved.

**Details of Action Plans for This Cycle (by Established cycle, then alpha)**

**Student expertise and employment**

Equine certificate students will be exposed to internship opportunities through undergraduate
advising and internship coordinators. Communication of internship requirements will be
disseminated to all students at the beginning of their equine certificate program. Students will be
tracked via course completion through undergraduate advising and internship coordinators. The
current UG survey assessment tool will include survey questions pertinent to equine certificate
students.

*Established in Cycle: 2016-2017*

**Implementation Status:** Planned

**Priority:** High

**Relationships (Measure | Outcome/Objective):**

- **Measure:** Internships | **Outcome/Objective:** Develop Expertise | Employment Rate

**Implementation Description:** Equine certificate will undergo reassessment by Equine faculty
as part of the new UG curriculum to strengthen internship program. Number of hours, courses
offered are being reviewed. CTE is assisting department with developing assessment plan for UG
curriculum.

*Projected Completion Date: 08/30/2019*

**Responsible Person/Group:** Equine certificate coordinator, Internship Coordinators, UG
Advising Office, Associate Head for Academic Programs.

**Improve employment rate for equine certificate students**

Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 33% (8) of
the students completing the equine certificate program (24 total) gained employment in the equine
industry or related field. Goal: Increase employment rate of Equine certificate program students to
target (50%).

*Established in Cycle: 2017-2018*
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Internship Evaluation | Outcome/Objective: Employment Rate

Implementation Description: Coordination meetings will be conducted to determine number of students who completed internships and their projected graduation date. These students will be focused on providing future employment resources to enhance their opportunity for employment in the equine or equine related field.
Projected Completion Date: 08/30/2019
Responsible Person/Group: Certificate program coordinator, internship coordinator, advising office, ANSC equine faculty
Additional Resources Requested: None

Improving communication skills
Based on the ANSC 2017-18 survey of graduating seniors 54.17% indicated they had improved their written communication skills, while 62.50% indicated they had improved their oral communication skills. The target indicates that 80% of Equine Science certificate students will achieve a score of 75% or higher in oral/written communication skills as evidenced by performance during individual and/or team projects/presentations. Assessment of communication performance by equine science faculty will be included to generate data for the next assessment cycle.

Established in Cycle: 2017-2018
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Communication | Outcome/Objective: Communication skills

Implementation Description: The ANSC department revised UG curriculum has been implemented effective 2018. As part of this effort the ANSC equine faculty will reassess/revise existing equine certificate program courses and incorporate the new UG program student learning outcomes to enhance written and oral communication skills.
Projected Completion Date: 08/30/2019
Responsible Person/Group: ANSC equine faculty; ANSC UPC committee
Additional Resources Requested: None

Analysis Questions and Analysis Answers
Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?
The ANSC department identified these next steps based on the review of the ANSC 2017-18 survey of graduating seniors, the student learning outcomes of our revised UG curriculum and input from the ANSC equine faculty, ANSC internship coordinator and the ANSC Undergraduate Program Committee. Based on the ANSC 2017-18 survey of graduating seniors 54.17% indicated they had improved their written communication skills, while 62.50% indicated they had improved their oral communication skills. The target indicates that 80% of Equine Science certificate students will achieve a score of 75% or higher in oral/written communication skills as evidenced by performance during individual and/or team projects/presentations. Assessment of communication performance by equine science faculty will be included to generate data for the next assessment cycle. The ANSC department revised UG curriculum has been implemented effective 2018. As part of this effort the ANSC equine faculty will reassess/revise existing equine certificate program courses and incorporate the new UG program student learning outcomes to enhance written and oral communication skills. The ANSC department believes that this action plan will improve future
assessment results due to its focus on incorporating UG program student learning outcomes in
existing equine certificate program courses to enhance student knowledge and skills in the equine
discipline. Increased coordination between certificate program students, certificate program
coordinator, ANSC internship coordinator and equine faculty will increase the number of equine
certificate students gaining employment in the equine or equine related field.

*CRITICAL* Provide an update for completed or ongoing action plans from the previous year(s).
Discuss any successes, challenges, and/or obstacles the program/unit has experienced while
implementing the Action Plan(s). Address whether or not the program/unit has seen any
improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were
designed to address and why the action plan may/may not have resulted in improvements.

The Equine Certificate Program has been faced with the following challenges to improve
assessment results: 1. Turnover in equine faculty 2. No designated certificate program director 3.
No formalized structure to collect program certificate data. 4. Large number of courses required to
complete the certificate program Currently a certificate program director has been identified and the
equine faculty has been in discussions to reassess and revise current course offerings. As part of
our revised UG curriculum and development of program learning outcomes, the equine faculty is
reviewing the student learning outcomes for all program courses. Additionally, more internship
resources have been provided with the hiring of an Instructional Assistant Professor to aid in
identifying internship opportunities and future employment. These efforts should result in improved
assessment results.
Mission / Purpose

The Undergraduate Certificate in Meat Science is designed to provide specialized instruction and training in meat science. The certificate program is designed to prepare ANSC undergraduate students for a variety of careers in the meat or meat-related industry. The objective of the certificate program is to provide students with a core set of essential skills, knowledge and competencies sought by the meat industry.

Goals

G 1: Development of Technical Expertise
Students participating in the Meat Science certificate program will develop an expanded knowledge base, advanced skills and competencies in meat science chemistry, conversion of muscle to meat, fabrication, further processing, nutrition, safety and quality.

G 2: Student Employment Rate
Meat Science certificate program students will be tracked to collect data (via established ANSC undergraduate student survey assessment) on employment in the meat industry.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Develop Expertise
Development of Meat Science Skills, Competencies and Expertise

Related Measures:

M 1: Develop Expertise
Meat Science certificate students will conduct an internship in the meats or meats related industry.

Source of Evidence: Field work, internship, or teaching evaluation

Target:
50% of students pursuing the meat science certificate will have an internship experience.

Findings (2017-2018) - Target: Met
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 75% (15) of the students completing the meats certificate program (20 total) had an internship experience.

Findings (2016-2017) - Target: Not Met
First time for this program to be assessed - we don't have data to support.

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.

Student Success
Established in Cycle: 2016-2017
Students pursuing the meat science certificate will be tracked to determine if they had an internship experience. Certificate co...
SLO 2: Employment Rate
Employment rate of students completing the Meat Science certificate program.

Related Measures:

M 1: Develop Expertise
Meat Science certificate students will conduct an internship in the meats or meats related industry.

Source of Evidence: Field work, internship, or teaching evaluation

Target:
75% of students completing the meat science certificate will be employed in the meats or meats related industry.

Findings (2017-2018) - Target: Not Met
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 30% (6) of the students completing the meats certificate program (20 total) gained employment in the meat industry or related field. Goal: Increase employment rate of Meat certificate program students to target (75%)

Findings (2016-2017) - Target: Not Met
First time for this program to be assessed - we don't have data to support.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Student Success
Established in Cycle: 2016-2017
Students pursuing the meat science certificate will be tracked to determine if they had an internship experience. Certificate co...

Improve employment rate for meat science certificate students
Established in Cycle: 2017-2018
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 30% (6) of the students completing the meat...

SLO 3: Communication Skills
Students pursuing the Meat Science certificate will display satisfactory competency in communication skills (written and oral).

Related Measures:

M 2: Communication
Meat Science certificate students will demonstrate sufficient communication skills (oral/written) to adequately convey meat science knowledge and/or expertise.

Source of Evidence: Presentation, either individual or group

Target:
80% of Meat Science certificate students will achieve a score of 75% or higher in oral/written communication skills has evidenced by performance during individual and/or team projects/presentations. It is noted that this assessment data is based on student self reporting while our target references faculty scoring of observed performance on a team or presentation. Efforts will be made to collect data on certificate program student performance on a team or individual presentation for inclusion in next year's assessment cycle.
Findings (2017-2018) - Target: Met
Based on the ANSC 2017-18 survey of graduating seniors, over 75% of students completing the meat science certificate program expanded their skills and competencies in meat science chemistry; conversion or muscle to meat; meat fabrication; processed meats; meat nutrition; meat quality; meat safety; written (75%) and oral (75%) communication skills.

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Student Success
Students pursuing the meat science certificate will be tracked to determine if they had an internship experience. Certificate courses will be reviewed to determine if any need to added, deleted or modified to enhance student success. Certificate student employment rate will be tracked by adding meat science certificate specific questions to our UG survey assessment tool.

Established in Cycle: 2016-2017
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Develop Expertise | Outcome/Objective: Develop Expertise | Employment Rate

Projected Completion Date: 08/30/2019
Responsible Person/Group: Meat Science Certificate Coordinator, Internship Coordinators, UG Advising Office, Associate Head for Academic Programs

Improve employment rate for meat science certificate students
Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 30% (6) of the students completing the meats certificate program (20 total) gained employment in the meat industry or related field. Goal: Increase employment rate of Meat certificate program students to target (75%) . Based on ANSC 2017-18 survey of graduating seniors, over 50% indicated that their knowledge improved in the areas of meat science chemistry, conversion of muscle to meat, meat fabrication, processed meats, nutrition, quality, and safety. Meat science certificate courses will be reviewed to ensure student learning outcomes match overall UG curriculum SLOs and focus on the areas noted previously. This approach will ensure students receive education/training to achieve a sufficient/proficient rating in assessed SLOs, thereby increasing their chances of gaining successful employment.

Established in Cycle: 2017-2018
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
Measure: Develop Expertise | Outcome/Objective: Employment Rate

Implementation Description: Coordination meetings will be conducted to determine number of students who completed internships and their projected graduation date. Certificate courses will be reviewed to ensure approved UG SLOs are included that enhance student learning in meat science and increase the opportunity to gain employment.

Projected Completion Date: 08/30/2019
Responsible Person/Group: Certificate program coordinator, internship coordinator, advising office, ANSC meat science faculty
Analysis Questions and Analysis Answers

Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?

The ANSC department identified these next steps based on the review of the ANSC 2017-18 survey of graduating seniors, the student learning outcomes of our revised UG curriculum and input from the ANSC meat science faculty, ANSC internship coordinator and the ANSC Undergraduate Program Committee. Based on the results of the ANSC 2017-18 survey of graduating seniors, approximately 30% (6) of the students completing the meats certificate program (20 total) gained employment in the meat industry or related field. Goal: Increase employment rate of Meat certificate program students to target (75%) . Based on ANSC 2017-18 survey of graduating seniors, over 50% indicated that their knowledge improved in the areas of meat science chemistry, conversion of muscle to meat, meat fabrication, processed meats, nutrition, quality, and safety. Meat science certificate courses will be reviewed to ensure student learning outcomes match overall UG curriculum SLOs and focus on the areas noted previously. This approach will ensure students receive education/training to achieve a sufficient/proficient rating in assessed SLOs, thereby increasing their chances of gaining successful employment. Coordination meetings will be conducted to determine number of students who completed internships and their projected graduation date. Certificate courses will be reviewed to ensure approved UG SLOs are included that enhance student learning in meat science and increase the opportunity to gain employment. The ANSC department believes that this action plan will improve future assessment results due to its focus on incorporating UG program student learning outcomes in existing meat science certificate program courses to enhance student knowledge and skills in the meat science discipline. Increased coordination between certificate program students, certificate program coordinator, ANSC internship coordinator and meat science faculty will increase the number of meat science certificate students gaining employment in the meat industry or related field.

*CRITICAL* Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.

The Meat Science Certificate Program has been faced with the following challenges to improve assessment results: 1. No designated certificate program director 2. No formalized structure to collect program certificate data. Thus far no certificate program director has been identified. The meat science faculty have been in discussions to reassess and revise current course offerings. As part of our revised UG curriculum and development of program learning outcomes, the meat science faculty is reviewing the student learning outcomes for all program courses. Additionally more internship resources have been provided with the addition of an Instructional Assistant Professor to aid in identifying internship opportunities and future employment. These efforts should result in improved assessment results.
Mission / Purpose

Our mission is to train graduate students about the biology, production and care of food and fiber production, and equine science. The Department of Animal Science offers dynamic and challenging programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who are able to contribute to the industry or continue further post-graduate education.

Goals

G 0: Knowledge base
Enhance foundational knowledge and skill competency.

G 2: Communication - Written and Oral
Students should exhibit proficiency in written and oral communication.

G 3: Complex Problem Solving
Students should exhibit proficiency in complex problem solving.

G 4: Understanding Research
Students should exhibit proficiency in understanding and conducting research.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Knowledge Base
Students will develop a foundational knowledge and skill competency.

Relevant Associations:

Graduate Outcome Associations:
1.1 Master degree program requirements, including theories, concepts, principles, and practice, and develop a coherent understanding of the subject matter through synthesis across courses and experiences.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.

Source of Evidence: Comprehensive/end-of-program subject matter exam

Connected Document
• Final Defense Rubric

Target:
90% of M.S. or M.Agr. students will demonstrate a mastery of discipline knowledge, as evidenced by meeting or exceeding expectations on item number one of the faculty evaluation form.
Findings (2017-2018) - Target: Met
100% of students defending either met or exceeded committee expectations.

Findings (2016-2017) - Target: Met
During the current cycle findings indicated that 53% of MSc/MAgr students exceeded and 46% met the target of demonstrated mastery of discipline knowledge (Q1) on faculty evaluation form. Out of 25 Masters students no student was rated below expectations for this target.

Findings (2015-2016) - Target: Met
93% of MS or MAgr students demonstrated a mastery of discipline knowledge, as evidenced by meeting or exceeding expectations on item number one of the faculty evaluation form.

Findings (2014-2015) - Target: Met
100% of students demonstrated the ability to analyze and integrate information either by meeting or exceeding expectations.

M 2: Student Productivity Survey
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

Connected Document
- COALS Graduate Student Evaluation Form_Student Version

Target:
75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2017-2018) - Target: Met
80% of students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2016-2017) - Target: Met
100% of MS students presented at least one paper for their research data at a scientific meeting. However, it was noted that a better data collection system for this metric is needed.

Findings (2015-2016) - Target: Met
100% of MS students presented at least one paper for their research data at a scientific meeting.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

SLO 2: Communication - Written and Oral
Students will exhibit proficiency in written and oral communication.

Relevant Associations:

Graduate Outcome Associations:
1.4 Communicate effectively.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.

Source of Evidence: Comprehensive/end-of-program subject matter exam

**Connected Document**
- Final Defense Rubric

**Target:**
90% of M.S. or M.Agr. students will demonstrate effective communication, as evidenced by meeting or exceeding expectations on item number four of the faculty evaluation form.

**Findings (2017-2018) - Target: Met**
99% of students demonstrated effective communication, as evidenced by meeting or exceeding expectations on item number 4 of faculty evaluations

**Findings (2016-2017) - Target: Met**
100% of MSc or MAgr students met (58%) or exceeded (42%) standards to demonstrate effective communication, as evidenced by meeting or exceeding expectations on item number four of the faculty evaluation form.

**Findings (2015-2016) - Target: Met**
93% of MS or MAgr students demonstrated effective communication, as evidenced by meeting or exceeding expectations on item number four of the faculty evaluation form.

**Findings (2014-2015) - Target: Met**
100% of students demonstrated effective communication by meeting or exceeding expectations of faculty.

**M 2: Student Productivity Survey**
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

**Connected Document**
- COALS Graduate Student Evaluation Form_Student Version

**Target:**
75% of MS students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

**Findings (2017-2018) - Target: Met**
100% of MS students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

**Findings (2016-2017) - Target: Met**
100% of MS students presented at least one paper for their research data at a scientific meeting. 42% (above expectation) and 58% (meets expectation) of MSc students were assessed for effective communication (N=26). 2.42 out of 3.0 rating scale.

**Findings (2015-2016) - Target: Met**
100% of MS students presented a paper regarding their research data at a scientific meeting.
Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

SLO 3: Complex Problem Solving
Students will exhibit proficiency in complex problem solving.

Relevant Associations:

Graduate Outcome Associations:
1.2 Apply subject matter knowledge in a range of contexts to solve problems and make decisions.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.

Source of Evidence: Comprehensive/end-of-program subject matter exam

Connected Document
• Final Defense Rubric

Target:
90% of M.S. or M.Agr. students will demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number three of the faculty evaluation form

Findings (2017-2018) - Target: Met
Approximately 97% of students met or exceeded expectations on item number 3 of the faculty evaluation form

Findings (2016-2017) - Target: Met
100% of MSc students met (28%) or were above (68%) standards to demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number three of the faculty evaluation form.

Findings (2015-2016) - Target: Partially Met
88% of MS or MAgr students demonstrated the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number three of the faculty evaluation form.

Findings (2014-2015) - Target: Met
95% of students either met or were above faculty expectations on item number 3 of the assessment form.

Findings (2013-2014) - Target: Met
95.5% of the M.S. and M.Agr. meet or exceed the expected ability to analyze and integrate information based on faculty assessments during final defense examination.

Findings (2012-2013) - Target: Met
71 of 76 (94.3%) of M.S. or M.Agr. students completed the requirements for the degree within three years of admission into the program.

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.
Applied Discipline Knowledge
Established in Cycle: 2013-2014
The graduate curriculum review was completed during FY14. The Departmental policies regarding core courses and the publicity for...

Complex Problem Solving
Established in Cycle: 2015-2016
The past 5 years the target to solve complex problems has been met. This current cycle the percentage of student demonstrated th...

M 2: Student Productivity Survey
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

Connected Document
• COALS Graduate Student Evaluation Form_Student Version

Target:
85% of students will report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

Findings (2017-2018) - Target: Met
100% of students report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

Findings (2016-2017) - Target: Met
100% of MS students indicated they were acceptable or proficient in their ability to use information to analyze and integrate knowledge. However 4% (Chair/co-chair) and 2% (committee members) indicated that MSc were below expectations.

Findings (2015-2016) - Target: Met
100% of students (7/7) reported that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

SLO 4: Understanding Research
Students will demonstrate proficiency in understanding research.

Relevant Associations:

Graduate Outcome Associations:
1.3 Use a variety of sources and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense using the COALS graduate student evaluation form.

Source of Evidence: Comprehensive/end-of-program subject matter exam

Connected Document
• **Final Defense Rubric**

**Target:**
90% of M.S. students will demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number nine of the faculty evaluation form.

**Findings (2017-2018) - Target: Met**
100% of M.S. students demonstrated the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number nine of the faculty evaluation form.

**Findings (2016-2017) - Target: Met**
100% of MSc students met (40%) or exceeded (60%) standards to demonstrate the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number nine of the faculty evaluation form.

**Findings (2015-2016) - Target: Met**
100% of MS students demonstrated the ability to solve complex problems, as evidenced by meeting or exceeding expectations on item number nine of the faculty evaluation form.

**Findings (2014-2015) - Target: Met**
94% of students either met expectations or performed above faculty expectations.

**Related Action Plans (by Established cycle, then alpha):**

For full information, see the Details of Action Plans section of this report.

**Library Resource Training**

*Established in Cycle: 2014-2015*

Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource material...

**M 2: Student Productivity Survey**

Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

**Connected Document**

- COALS Graduate Student Evaluation Form_Student Version

**Target:**
80% of MS students will report that they are either acceptable or proficient in their ability to conduct valid, supported research.

**Findings (2017-2018) - Target: Met**
90% of MS students report that they are either acceptable or proficient in their ability to conduct valid, supported research.

**Findings (2016-2017) - Target: Met**
100% of MS students will report that they are either acceptable or proficient in their ability to conduct valid, supported research. This was also supported by evaluations of this metric by Chair/co-chair and committee member assessments.
Findings (2015-2016) - Target: Met
100% of MS students reported that they are either acceptable or proficient in their ability to conduct valid, supported research.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Library Resource Training
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource material...

Other Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

O/O 5: Employment
Graduates will be employed or seeking further graduate professional school opportunities upon completion of degree requirements.

Related Measures:

M 3: Placement Data
The department collects information about the number of students who secure employment or pursue additional education upon graduation

Source of Evidence: Job placement data, esp. for career/tech areas

Target:
70% of M.S. or M.Agr. students will secure employment or pursue graduate or professional school upon graduation

Findings (2017-2018) - Target: Not Reported This Cycle
Not reported this cycle

Findings (2016-2017) - Target: Met
Greater than 70% of M.S. or M.Agr. students secured employment or pursue graduate or professional school upon graduation. However, it was noted that a better data collection system is need to effectively record this information.

Findings (2015-2016) - Target: Met
93% of MS or M.Agr students will secure employment or pursue graduate or professional school upon graduation. 22% of the students are pursuing graduate or professional school.

Findings (2014-2015) - Target: Met
95% of students either have employment or are pursuing graduate school upon graduation, 24% of those will be attending graduate school upon graduation.

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Applied Discipline Knowledge
The graduate curriculum review was completed during FY14. The Departmental policies regarding core courses and the publicity for the final examination were updated. The Department identified the ability to apply discipline knowledge as an appropriate measure of complex problem solving. An instrument will be administered during the final defense to the
student and their advisory committee to assess application and integration of discipline knowledge toward resolution of problem issues.

**Established in Cycle:** 2013-2014  
**Implementation Status:** In-Progress  
**Priority:** High

**Relationships (Measure | Outcome/Objective):**  
Measure: Final Defense | Outcome/Objective: Complex Problem Solving

**Implementation Description:** Faculty in the Department approved recommendation of the curriculum review committee for FY14. The policies regarding core courses and final examination were embraced by the departmental faculty. The curriculum modifications along with the training by mentors should facilitate the ability of each student to apply discipline knowledge towards complex problem solving.

**Projected Completion Date:** 08/31/2016  
**Responsible Person/Group:** Associate Head for Academic Programs  
**Additional Resources Requested:** Time required to administer and summarize the results of the survey instruments.

**Conduct Valid Research**
In order to assess the ability of Master's students to understand the importance of research, we will assess the ability of the student to formulate testable hypothesis and conduct valid experimentation. This assessment will be conducted by an instrument administered during the final thesis defense for both the Advisory Committee and the student to complete. The assessment ratings will include categories for meeting expectations or falls above or below expectations.

**Established in Cycle:** 2013-2014  
**Implementation Status:** In-Progress  
**Priority:** High

**Implementation Description:** Graduate students will be informed of the importance of conducting valid research during new student orientation. Graduate faculty and advisors will be informed that this characteristic will be assessed during the final thesis defense and encouraged to ensure graduate student compliance.

**Projected Completion Date:** 08/31/2015  
**Responsible Person/Group:** Associate Head for Academic Programs  
**Additional Resources Requested:** Time required to administer and summarize the survey instruments.

**Library Resource Training**
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource materials to enhance the research experience has stimulated our desire to increase usage of these sources of information. Therefore, we will hold informational and training sessions for our graduate students in to increase their technical skills in effectively using library resources. Library faculty and staff will facilitate these training sessions.

**Established in Cycle:** 2014-2015  
**Implementation Status:** Finished  
**Priority:** High

**Relationships (Measure | Outcome/Objective):**  
Measure: Final Defense | Outcome/Objective: Understanding Research  
Measure: Student Productivity Survey | Outcome/Objective: Understanding Research

**Complex Problem Solving**
The past 5 years the target to solve complex problems has been met. This current cycle the percentage of student demonstrated the ability to solve complex problems was 2% below the target. In order to improve our students' abilities, our departmental faculty will place renewed emphasis on training students to resolve complex problems. Specifically, we will use time during
faculty meetings to discuss this topic, and to allow faculty to share ideas about best practices in order to take those back to their classrooms.

**Established in Cycle:** 2015-2016  
**Implementation Status:** In-Progress  
**Priority:** High

**Relationships (Measure | Outcome/Objective):**
- **Measure:** Final Defense  
- **Outcome/Objective:** Complex Problem Solving

**Implementation Description:** Faculty in the department will emphasize complex problem solving skills training masters students. If this approach does not improve performance in the next cycle, then further actions will be implemented.

**Projected Completion Date:** 07/31/2017  
**Responsible Person/Group:** Department Graduate Faculty  
**Additional Resources Requested:** Time required to administer and summarize the results of the survey instruments.

**Graduate Curriculum Revision**
We met all of our targets for the 2016-17 assessment cycle, but our data findings and initial graduate curriculum review highlighted areas that indicated our student learning outcomes are loosely mapped to our curriculum. Based on the most recent graduate curriculum review, initiative will be taken to begin the planning process for redesigning our graduate curriculum. based on the experiences gained through our ongoing undergraduate curriculum redesign, it has been determined that the same process should be applied to our graduate curriculum. The recent graduate curriculum review and other metrics (i.e., Provost scorecard) indicated that there is room for improvement with time to degree targets. Reevaluating our current graduate curriculum to revise student learning outcomes and assess whether course offerings are adequately offered throughout the academic year allows us to not only improve our time to degree percentage, but also ensure that technical knowledge, basic and applied technical skills, critical thinking and complex problem solving and competency in the scientific method are maintained and hopefully enhanced. New guidelines generated as a result of this effort will be added to the Graduate Student Handbook.

**Established in Cycle:** 2016-2017  
**Implementation Status:** In-Progress  
**Priority:** High

**Implementation Description:** The Graduate Curriculum Committee will begin the planning process to implement this action item with input from the Associate Department Head for Academic Programs and the members of the Graduate faculty.

**Projected Completion Date:** 06/29/2018  
**Responsible Person/Group:** Graduate Curriculum Committee, Associate Head for Academic Programs, ANSC Graduate Faculty.

**MSc Graduate Curriculum SLO Development and Curriculum Mapping**
For the 2017-18 assessment cycle all reported targets in measures and findings were met. However, the department would like to build/enhance learning of our MSc students. Our curriculum revision/redesign efforts will include curriculum mapping that will ensure that our selected learning outcomes are reinforced throughout the curriculum. Primary target areas for improvement include: 1. Applied Discipline Knowledge 2. Conduct Valid Research 3. Complex Problem Solving The assessment results from the final exam survey/assessment administered by the College of Agriculture and Life Sciences, provide assessment data for Applied Discipline Knowledge, Conduct Valid Research and Complex Problem Solving. Based on this assessment data, the ANSC graduate faculty, ANSC Graduate Program Committee and the Associate Head for Academic Programs are now on developing a MSc curriculum strategy to develop SLOs and conduct curriculum mapping to enhance MSC student learning.
Established in Cycle: 2017-2018  
Implementation Status: Planned  
Priority: High  
Implementation Description: Based on assessment data, the ANSC graduate faculty, ANSC Graduate Program Committee and the Associate Head for Academic Programs will develop a MSc curriculum strategy to develop SLOs and conduct curriculum mapping to enhance MSC student learning.  
Projected Completion Date: 08/28/2020  
Responsible Person/Group: Graduate Program Committee, ANSC Graduate Faculty, Associate Head for Academic Programs

Analysis Questions and Analysis Answers

Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?  
For the 2017-18 assessment cycle all reported targets in measures and findings were met. In progress action plans include; 1. Applied Discipline Knowledge 2. Conduct Valid Research 3. Complex Problem Solving 4. Graduate Curriculum Revision The assessment results from the final exam survey/assessment administered by the College of Agriculture and Life Sciences, provide assessment data for the first three in progress actions plans. The ANSC graduate faculty, ANSC Graduate Program Committee and the Associate Head for Academic Programs has utilized these final exam survey results has now focused their efforts on in progress action plan 4. Graduate Curriculum Revision. The ANSC GPC has initiated a review of current MSc program requirements and is beginning to develop a strategy to initiate the graduate curriculum revision process. Challenges to the graduate curriculum revision process is primarily the lack of expertise in curriculum redesign on the ANSC GPC. The Center for Teaching Excellence has assisted with our ANSC UG redesign and thus it makes sense for the CTE to be involved in the graduate curriculum revision process.

*CRITICAL* Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.

The ANSC Department has seen improvement in understanding and accepting the importance of assessment in improving out MSc graduate degree program. Our recent UG curriculum revision with CTE assistance has provided a successful framework to emulate for our proposed graduate curriculum revision. The primary assessment data collected for our MSc graduate degree programs is the COALS final exam assessment survey. Although this is an important tool for assessment data, it occurs at the end of a student's degree program. We have beta tested a graduate student performance review to collect student performance data on an annual basis for both the student and faculty advisor to identify difficulties earlier in the degree program. This should provide the department with useful assessment data to recommend program changes if adopted. However, the department's greatest challenge is revising the MSc graduate degree program curriculum to develop program learning outcomes and student learning outcomes that provide data to determine if we are meeting or exceeding the educational knowledge, skills and competencies required of our MSc students to continue their graduate education or enter the workforce. Currently the ANSC GPC continues to make progress on the action plan - Graduate Curriculum Revision. Assessment data indicated that indicated our student learning outcomes are loosely mapped to our curriculum. Based on the most recent graduate curriculum review, the ANSC GPC has initiated review of our MSc degree requirements and is beginning the planning process for redesigning our graduate curriculum. The ANSC GPC has directed the Associate Head for Academic Programs to contact the Center for Teaching Excellence to assist in this endeavor. Their expertise in developing program learning outcomes and new/revised student learning outcomes and assessment plans are critical for our MSc degree program to move forward. We did achieve the revision of our Graduate Student Handbook. Newly published on September 1, 2018.
Mission / Purpose

The Equine Industry Management program is designed to prepare graduates for a variety of careers in the equine industry, and to graduate the future leaders of the equine industry. The objective of the program is to provide students with a core set of skills considered to be vital in the equine industry, and then guide students in customizing the supporting internships based on specific career path interests. Thus, graduates will have a consistent core set of skills as well as specialized skill sets that prepare them to be successful in specific careers. The curriculum focuses on developing skill sets in equine sciences, marketing, management, public affairs, communication and leadership.

Goals

G 2: Development of technical expertise
MEIM students will participate in two professional internships during their degree. MEiM students will write a professional paper demonstrating their understanding of their selected equine area of expertise.

G 3: Employment rate
MEIM students will be tracked to collect data on their employment and progress in the equine industry. Goal is 100% employment in equine or equine related industries.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Leadership
Demonstrate Leadership & Team Development

Related Measures:

M 2: Internships
Students will complete two industry or professional internships.

Source of Evidence: Field work, internship, or teaching evaluation

Target:
100% of students will receive at least a satisfactory evaluation from their internship supervisor.

Findings (2017-2018) - Target: Not Reported This Cycle
The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle.

Findings (2016-2017) - Target: Met
All students (100%) received satisfactory or better evaluations from their internship supervisor.

Related Action Plans (by Established cycle, then alpha):

For full information, see the Details of Action Plans section of this report.
Student Success
*Established in Cycle: 2016-2017*
Since no findings were collected, efforts will be made to develop an assessment survey tool to be given to MEIM students.

SLO 2: Develop Expertise
Development of Specific Areas of Expertise

**Related Measures:**

**M 1: Professional Paper**
Students will be evaluated during their capstone assignment using an established rubric writing and presenting their professional paper/seminar, conducted as part of their internship experience or assigned project.

Source of Evidence: Capstone course assignments measuring mastery

**Target:**
Students will display knowledge and technical expertise as evidenced by submitting a professional paper and presenting a professional seminar. Students will meet standards for content, professionalism and response to questions following an established rubric.

**Findings (2017-2018) - Target: Not Reported This Cycle**
The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle.

**Findings (2016-2017) - Target: Partially Met**
MEIM students presented their professional papers and seminars as part of degree requirements. It was observed that one student's paper and seminar did not follow the same guidelines as presented by the previous three. Standards were met but it was noted that clear guidance perhaps with the additional of rubrics for professional papers and seminars should be provided by the chair to ensure standardization of requirements for all cohorts. This program is new and is the first time it has been placed in the "assessment cycle" so there is no detailed data to report.

**Related Action Plans (by Established cycle, then alpha):**

For full information, see the Details of Action Plans section of this report.

Student Success
*Established in Cycle: 2016-2017*
Since no findings were collected, efforts will be made to develop an assessment survey tool to be given to MEIM students after y...

**M 2: Internships**
Students will complete two industry or professional internships.

Source of Evidence: Field work, internship, or teaching evaluation

**Target:**
100% of students will meet or exceed expectations in demonstrating their mastery of expertise in equine industry management through successful completion of their professional paper and seminar.
**Findings (2017-2018) - Target: Not Reported This Cycle**
The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle.

**Related Action Plans (by Established cycle, then alpha):**

**Student Success**
*Established in Cycle: 2016-2017*
Since no findings were collected, efforts will be made to develop an assessment survey tool to be given to MEIM students after y...

**SLO 3: Graduate Success**
Success of MEIM students in finding employment.

**Related Measures:**

**M 2: Internships**
Students will complete two industry or professional internships.

Source of Evidence: Field work, internship, or teaching evaluation

**Target:**
100% of students will successfully graduate from the MEIM program and will gain employment in the equine industry.

**Findings (2017-2018) - Target: Not Reported This Cycle**
The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle.

**Findings (2016-2017) - Target: Met**
ALL MEIM students (4) successfully received their degrees (May 2017) and are employed and/or continuing professional education.

**Related Action Plans (by Established cycle, then alpha):**

For full information, see the Details of Action Plans section of this report.

**Student Success**
*Established in Cycle: 2016-2017*
Since no findings were collected, efforts will be made to develop an assessment survey tool to be given to MEIM students after y...

**Details of Action Plans for This Cycle (by Established cycle, then alpha)**

**Student Success**
Since no findings were collected, efforts will be made to develop an assessment survey tool to be given to MEIM students after year 1 and 2 of the program to assess that the targets for develop expertise, graduate success and leadership are on target to being met (year 1) and are met (year 2).

**Established in Cycle:** 2016-2017
**Implementation Status:** In-Progress
**Priority:** High

**Relationships (Measure | Outcome/Objective):**
- **Measure:** Internships | **Outcome/Objective:** Develop Expertise | Graduate Success | Leadership
- **Measure:** Professional Paper | **Outcome/Objective:** Develop Expertise

**Projected Completion Date:** 05/31/2019
**Responsible Person/Group:** MEIM Program Coordinator, Associate Head Academic Programs, other interested faculty

**Assessment Results 2017-2018 Cycle**
The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle. Collecting data for Student Success involves the development of a graduate student survey via Qualtrics entitled the Graduate Student Performance Review. It was beta tested in February 2018. This tool is designed to collect data pertinent to a student's performance and an assessment of their time to degree. This effort, overseen by the ANSC GPC will be used to collect data annually to be used as part of our assessment data. This will help alleviate the two year gap in data collection for the 2 year MEIM program. The use of current survey tools (Graduate student final exam survey and Graduate Student Performance Review) should improve our ability to collect data and improve future assessment results.

**Established in Cycle:** 2017-2018
**Implementation Status:** Planned
**Priority:** High

**Analysis Questions and Analysis Answers**

Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?

The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) will be collected until then. The data collected will be used for the 2018-19 assessment cycle. Collecting data for Student Success involves the development of a graduate student survey via Qualtrics entitled the Graduate Student Performance Review. It was beta tested in February 2018. This tool is designed to collect data pertinent to a student's performance and an assessment of their time to degree. This effort, overseen by the ANSC GPC will be used to collect data annually to be used as part of our assessment data. This will help alleviate the two year gap in data collection for the 2 year MEIM program. The use of current survey tools (Graduate student final exam survey and Graduate Student Performance Review) should improve our ability to collect data and improve future assessment results.

*CRIITAL* Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.

The MEIM program is a two year cohort program. The first cohort graduated in May 2017. The data collected was used during the 2016-17 assessment cycle. The second cohort will graduate in May 2019. Therefore, no data (professional papers/graduate student final exam survey) was collected for this assessment cycle. Collecting data for Student Success action plan involves the development of
a graduate student survey via Qualtrics entitled the Graduate Student Performance Review. It was beta tested in February 2018. This tool is designed to collect data pertinent to a student's performance and an assessment of their time to degree. This effort, overseen by the ANSC GPC will be used to collect data annually to be used as part of of our assessment data. This will help alleviate the two year gap in data collection for the 2 year MEIM program. The use of current survey tools (Graduate student final exam survey and Graduate Student Performance Review) should improve are ability to collect data and improve future assessment results. This tool is designed to collect data pertinent to a student's performance and an assessment of their time to degree. This effort, overseen by the ANSC GPC will be used to collect data annually to be used as part of of our assessment data. This will help alleviate the two year gap in data collection for the 2 year MEIM program. The use of current survey tools (Graduate student final exam survey and Graduate Student Performance Review) should improve are ability to collect data and improve future assessment results. Since the MEIM is a two year cohort program no improvements are reported. However, the incorporation of an annual Graduate Student Performance Review should provide useful mid program assessment data for use each assessment cycle to better track program improvements.
### Detailed Assessment Report
As of: 10/03/2018 06:54 AM CENTRAL
2013-2018 Animal Breeding, Animal Science, Physiology of Reproduction, PhD
(Includes those Action Plans with Budget Amounts marked One-Time, Recurring, No Request.)

#### Mission / Purpose

Our mission is to train graduate students about the biology, production and care of food and fiber production, and equine science. The Department of Animal Science offers dynamic and challenging programs that cover a broad variety of fields including animal behavior, animal biotechnology, beef cattle, dairy science, equine science, food science and technology, meat science, physiology of reproduction, sheep and goats, and swine. Our goal is to produce graduates who are able to contribute to the industry or academia.

#### Goals

<table>
<thead>
<tr>
<th>G 0:Knowledge base</th>
<th>Enhance fundamental knowledge and skill competency.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G 2:Communication - Written and Oral</td>
<td>Improve proficiency in written and oral communication.</td>
</tr>
<tr>
<td>G 3:Complex Problem Solving</td>
<td>Improve proficiency in complex problem solving.</td>
</tr>
<tr>
<td>G 4:Understanding Research</td>
<td>Stimulate proficiency in understanding and conducting research.</td>
</tr>
</tbody>
</table>

#### Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

<table>
<thead>
<tr>
<th>SLO 1:Knowledge Base</th>
<th>Students will develop a foundational knowledge and skill competency.</th>
</tr>
</thead>
</table>

**Relevant Associations:**

**Graduate Outcome Associations:**

2.1 Master degree program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.

**Related Measures:**

**M 1:Final Defense**

Faculty will complete an evaluation at the student's final defense.

Source of Evidence: Senior thesis or culminating major project

**Connected Document**

- Final Defense Rubric

**Target:**

50% of Ph.D. students will be ranked as exceeding the expectations to apply expert knowledge (item #2) by faculty at the time of their dissertation defense.
Findings (2017-2018) - Target: Not Met
42% of PhD students were ranked as exceeding the expectation to apply expert knowledge (item #2) by faculty at the time of their dissertation defense.

Findings (2016-2017) - Target: Met
Greater than 50% of Ph.D. students were be ranked as exceeding the expectations to apply expert knowledge (item #2) by faculty at the time of their dissertation defense. However detailed findings indicate a wide disparity between Chair assessments versus student assessment (29 vs 100% - above expectations; 71 versus 0% - meets expectations). There is an opportunity to further explore this disparity between Chair (faculty) and doctoral student assessment in this metric.

Findings (2015-2016) - Target: Met
80% of PhD students were ranked as exceeding the expectations to apply expert knowledge by faculty at the time of their dissertation defense.

Findings (2014-2015) - Target: Met
60% of students demonstrated the ability to analyze and integrate information either by exceeding faculty expectations at the time of the dissertation defense.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Knowledge Base
Established in Cycle: 2015-2016
For the objective for this cycle we need to continue the establishment of a baseline for the presentation of scientific data. D...

Apply expert knowledge in discipline
Established in Cycle: 2017-2018
Based on assessment data (COALS 2017-18 graduate final exam survey), 42% of PhD students were ranked as exceeding the expectation...

M 2: Student Productivity Survey
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

Connected Document
• COALS Graduate Student Evaluation Form_Student Version

Target:
75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2017-2018) - Target: Met
100% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate

Findings (2016-2017) - Target: Met
75% of PhD students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.
Findings (2015-2016) - Target: Partially Met
67% of PhD students had submitted at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Knowledge Base
Established in Cycle: 2015-2016
For the objective for this cycle we need to continue the establishment of a baseline for the presentation of scientific data.

SLO 2: Communication - Written and Oral
Students will exhibit proficiency in written and oral communication.

Relevant Associations:

Graduate Outcome Associations:
2.3 Communicate effectively.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense.

Source of Evidence: Senior thesis or culminating major project

Connected Document
• Final Defense Rubric

Target:
60% of Ph.D. students will effectively teach or explain concepts of their discipline (item #5) at the time of their dissertation defense.

Findings (2017-2018) - Target: Met
100% of Ph.D. students were able to effectively teach or explain concepts of their discipline (item #5) at the time of their dissertation defense.

Findings (2016-2017) - Target: Met
Greater than 60% of Ph.D. students effectively taught or explained concepts of their discipline (item #5) at the time of their dissertation defense. Interesting to note that a greater percentage of Chairs (86%) than students (67%) assessed student ability to explain concepts as above expectations.

Findings (2015-2016) - Target: Met
100% of PhD students could effectively teach or explain concepts of their discipline at the time of their dissertation defense.
Findings (2014-2015) - Target: Met
67% of students demonstrated the ability to effectively teach or explain concepts of their discipline by exceeding faculty expectations at the time of the dissertation defense.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Knowledge Base
Established in Cycle: 2015-2016
For the objective for this cycle we need to continue the establishment of a baseline for the presentation of scientific data. D...

M 2: Student Productivity Survey
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

Connected Document
• COALS Graduate Student Evaluation Form_Student Version

Target:
75% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2017-2018) - Target: Met
100% of students will submit at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2016-2017) - Target: Met
75% of students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.

Findings (2016-2017) - Target: Met
75% of students submitted at least one paper for publication or presentation regarding their research data at a scientific meeting prior to graduation.

Findings (2015-2016) - Target: Partially Met
67% of PhD students had submitted at least one paper for publication or presentation regarding their research data at a scientific meeting by the time they graduate.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

SLO 3: Complex Problem Solving
Students will exhibit proficiency in complex problem solving.

Relevant Associations:

Graduate Outcome Associations:
2.2 Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.

**Related Measures:**

**M 1: Final Defense**
Faculty will complete an evaluation at the student's final defense.

Source of Evidence: Senior thesis or culminating major project

**Connected Document**
- Final Defense Rubric

**Target:**
50% of Ph.D. students will exceed expectations for their ability to analyze and integrate information (item #3) by the faculty at the time of their dissertation defense.

**Findings (2017-2018) - Target: Met**
50% of Ph.D. students exceeded expectations for their ability to analyze and integrate information (item #3) by the faculty at the time of their dissertation defense. 50% of Ph.D. students will exceed expectations for their ability to analyze and integrate information (item #3) by the faculty at the time of their dissertation defense.

**Findings (2016-2017) - Target: Met**
Greater than 50% of Ph.D. students exceeded expectations for their ability to analyze and integrate information (item #3) by the faculty at the time of their dissertation defense. Chairs assessed this metric at 57% - above expectations and 43% - meets expectations.

**Findings (2015-2016) - Target: Met**
80% of PhD students could exceed expectations for their ability to analyze and integrate information by the faculty at the time of their dissertation defense.

**Findings (2014-2015) - Target: Met**
60% of students demonstrated the ability to analyze and integrate information by exceeding faculty expectations at the time of the dissertation defense.

**M 2: Student Productivity Survey**
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

**Connected Document**
- COALS Graduate Student Evaluation Form_ Student Version

**Target:**
85% of students will report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.
Findings (2017-2018) - Target: Met
100% of students will report that they are either acceptable or proficient in their ability to use information to analyze and integrate knowledge.

Findings (2016-2017) - Target: Met
100% of students reported that they were above expectations or proficient in their ability to use information to analyze and integrate knowledge. However, Chair assessments were lower (57% - above expectations, 43% - met expectations).

Findings (2015-2016) - Target: Met
100% of PhD students reported that they are proficient in their ability to use information to analyze and integrate knowledge.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

SLO 4: Understanding Research
Students will demonstrate proficiency in understanding research.

Relevant Associations:

Graduate Outcome Associations:
- 2.2 Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- 2.4 Develop clear research plans, conduct valid, data-supported, theoretically consistent, and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.
- 2.7 Choose ethical courses of action in research and practice.

Related Measures:

M 1: Final Defense
Faculty will complete an evaluation at the student's final defense.

Source of Evidence: Senior thesis or culminating major project

Connected Document
- Final Defense Rubric

Target:
50% of Ph.D. students will be assessed to exceed the requirements of conducting valid research (item #9) by the time of their dissertation defense.

Findings (2017-2018) - Target: Not Met
36% of Ph.D. students were assessed as exceeding the requirements of conducting valid research (item #9) by the time of their dissertation defense.

Findings (2016-2017) - Target: Partially Met
Chairs (43%) and members (58%) assessed Ph.D. students (N=3) as exceeded the requirements of conducting valid research (item #9) by the time of their dissertation defense.
Findings (2015-2016) - Target: Met
50% of PhD students were assessed to exceed the requirements of conducting valid research by the time of their dissertation defense.

Findings (2014-2015) - Target: Met
50% of students demonstrated the ability to conduct valid research by exceeding faculty expectations at the time of the dissertation defense.

Related Action Plans (by Established cycle, then alpha):
For full information, see the Details of Action Plans section of this report.

Library Resource Training
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource material...

Conducting valid research
Established in Cycle: 2017-2018
36% of Ph.D. students were assessed as exceeding the requirements of conducting valid research (item #9) by the time of their di...

M 2: Student Productivity Survey
Students will complete a survey at the time of the final defense indicating their scholarly productivity.

Source of Evidence: Performance in subsequent schooling feedback

Connected Document
- COALS Graduate Student Evaluation Form_Student Version

Target:
80% of students will report that they are either acceptable or proficient in their ability to conduct valid, data-supported research.

Findings (2017-2018) - Target: Met
100% of students will report that they are either acceptable or proficient in their ability to conduct valid, data-supported research

Findings (2016-2017) - Target: Met
100% of students reported that they were above expectations or proficient in their ability to conduct valid, data-supported research. However Chair assessments were lower (43%-above expectations, 57% met expectations).

Findings (2015-2016) - Target: Met
100% of PhD students reported that they are proficient in their ability to conduct valid, data-supported research.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.

Findings (2014-2015) - Target: Not Reported This Cycle
This data has not been analyzed during this assessment cycle, but will be included next academic year.
Other Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

O/O 5: Employment
Graduates will be employed or seeking further graduate professional school opportunities upon completion of degree requirements.

Relevant Associations:

Graduate Outcome Associations:
2.1 Master degree program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.
2.6 Teach and explain the subject matter in their discipline.

Related Measures:

M 3: Placement Data
The department collects information about the number of students who secure employment or pursue additional education upon graduation

Source of Evidence: Written assignment(s), usually scored by a rubric

Target:
70% of Ph.D. students will have secured employment in academia or industry upon graduation.

Findings (2017-2018) - Target: Not Reported This Cycle
Not reported this cycle.

Findings (2016-2017) - Target: Met
70% of Ph.D. students secured employment in academia or industry upon graduation. However, it was observed that the process to identify, collect and analyze data for this metric needs improvement.

Findings (2015-2016) - Target: Met
75% of PhD students have secured employment in academia or industry upon graduation.

Findings (2014-2015) - Target: Met
Met: 95% of students have either secured employment in academia or industry upon graduation.

Details of Action Plans for This Cycle (by Established cycle, then alpha)

Understand Discipline Knowledge
Since our target of successful completion of preliminary exams has been consistently met, a plan to transition to the survey instrument to assess understanding of discipline knowledge at the dissertation defense will be implemented. Our target is for 100% of the Ph.D. candidates to meet or exceed the expectations of understanding knowledge of their discipline.

Established in Cycle: 2012-2013
Implementation Status: Planned
Priority: High
Implementation Description: The expectation for understanding discipline knowledge will be emphasized during graduate student orientation. Ph.D. students and their mentors will be informed of the need to assess this important attribute during the dissertation defense.
Projected Completion Date: 08/31/2016
Responsible Person/Group: Associate Head for Academic Programs and graduate faculty mentors.
Additional Resources Requested: Time to administer and summarize the results of the instrument survey.

Disseminate Research
A Ph.D. student must be able to communicate knowledge and skills they have acquired to diverse audiences. We will assess the ability of Ph.D. students to disseminate research results during their dissertation defense. The student will complete a self-assessment along with an assessment by each member of the advisory committee. PhD research proposals will be evaluated by PhD committee chair, members and Associate Head for Academic Programs to ensure that students will be able to conduct valid research.

Established in Cycle: 2013-2014
Implementation Status: Planned
Priority: High
Implementation Description: The importance of the ability to communicate research will be conveyed to new Ph.D. students by their mentors. The instrument to survey the ability to communicate research results has been developed and will be administered during the dissertation defense.
Projected Completion Date: 08/31/2018
Responsible Person/Group: Associate Head for Academic Programs and the Faculty Advisory Committee Chairs
Additional Resources Requested: Time to administer and compile the results of the survey instrument.

Library Resource Training
Although we met the target for student proficiency in research, the need for students to utilize the myriad of resource materials to enhance the research experience has stimulated our desire to increase usage of these sources of information. Therefore, we will hold information and training sessions for our students. Library faculty and staff will facilitate these training sessions. We believe this will strengthen the research output of our students.

Implementation Status: Planned
Priority: High
Relationships (Measure | Outcome/Objective):
  Measure: Final Defense | Outcome/Objective: Understanding Research
Implementation Description: Library resources training will be incorporated into graduate student orientation, graduate seminars and special seminars through Animal Science Graduate Student Association.
Projected Completion Date: 07/31/2018
Responsible Person/Group: Associate Head Academic programs

Knowledge Base
For the objective for this cycle we need to continue the establishment of a baseline for the presentation of scientific data. Departmental faculty will encourage PhD students to demonstrate
competency and knowledge by presenting a paper for publication or presenting research at a scientific meeting, as we believe this activity demonstrates their discipline knowledge and their ability to communicate in a way that their manuscripts are accepted by their peers in the scientific community. Faculty will share this expectation with students and follow up on an annual basis to see if students have presented, and to support those efforts through feedback to students, editorial review, or other support that committee members often provide to students.

Established in Cycle: 2015-2016
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
  Measure: Final Defense | Outcome/Objective: Communication - Written and Oral |
  Knowledge Base
  Measure: Student Productivity Survey | Outcome/Objective: Knowledge Base

Implementation Description: The faculty and the department will emphasize the need to publish an article or present results of their research to be important for PhD trainees.
Projected Completion Date: 07/31/2017
Responsible Person/Group: Graduate Faculty Advisors

Graduate Curriculum Revision
We met all of our targets for the 2016-17 assessment cycle, but our data findings and initial graduate curriculum review highlighted areas that indicated our student learning outcomes are loosely mapped to our curriculum. Based on the most recent graduate curriculum review, initiative will be taken to begin the planning process for redesigning our graduate curriculum. Based on the experiences gained through our ongoing undergraduate curriculum redesign, it has been determined that the same process should be applied to our graduate curriculum. The recent graduate curriculum review and other metrics (i.e., Provost scorecard) indicated that there is room for improvement with time to degree targets. Reevaluating our current graduate curriculum to revise student learning outcomes and assess whether course offerings are adequately offered throughout the academic year us to not only improve our time to degree percentage, but also ensure that technical knowledge, basic and applied technical skills, critical thinking and complex problem solving and competency in the scientific method are maintained and hopefully enhanced. New guidelines generated as a result of this effort will be added to the Graduate Student Handbook.

Established in Cycle: 2016-2017
Implementation Status: Planned
Priority: High
Projected Completion Date: 08/28/2020
Responsible Person/Group: Graduate Curriculum Committee, Associate Head for Academic Programs, ANSC Graduate Faculty

Apply expert knowledge in discipline
Based on assessment data (COALS 2017-18 graduate final exam survey), 42% of PhD students were ranked as exceeding the expectation to apply expert knowledge (item#2) by faculty at the time of their dissertation defense. Goal: Reassess PhD degree program curriculum to ensure curriculum is providing appropriate discipline specific knowledge.

Established in Cycle: 2017-2018
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
  Measure: Final Defense | Outcome/Objective: Knowledge Base

Implementation Description: ANSC GPC will initiate a graduate program curriculum revision to ensure program learning outcomes are identified and that appropriate student learning outcomes are developed and mapped appropriately throughout the curriculum. This effort will aid in guiding PhD students in developing an appropriate degree plan and should result in achieving target.
Projected Completion Date: 08/28/2020
Responsible Person/Group: ANSC faculty, ANSC GPC, Associate Head for Academic Programs

Conducting valid research
36% of Ph.D. students were assessed as exceeding the requirements of conducting valid research (item #9) by the time of their dissertation defense. Goal: Provide training in experimental design, laboratory techniques, data collection and record keeping. Opportunities will be provided to expose students to the proper conduct of research through professional development programs at the department level (faculty advisory training, department and/or university level (OGAPS) workshop. Use of new graduate student performance review in conjunction with COALS final exam survey results will be used to determine progress in meeting our target.

Established in Cycle: 2017-2018
Implementation Status: Planned
Priority: High

Relationships (Measure | Outcome/Objective):
  Measure: Final Defense | Outcome/Objective: Understanding Research

Implementation Description: Opportunities to provide training in experimental design, laboratory techniques, data collection and record keeping via current graduate course offerings, workshops or increased faculty advisor guidance, training, oversight will be implemented.
Projected Completion Date: 08/28/2020
Responsible Person/Group: PhD faculty advisors, ANSC GPC, Associate Head for Academic Programs

Analysis Questions and Analysis Answers
Consider the Findings and the Action Plan(s) established this cycle. How did the program/unit identify these next steps for action? Why does the program/unit believe this Action Plan(s) should improve future assessment results?
Findings this year show that only 36% of Ph.D. students were assessed as exceeding the requirements of conducting valid research (item #9) by the time of their dissertation defense, which is below our target. Our goal is to provide training in experimental design, laboratory techniques, data collection and record keeping. Opportunities will be provided to expose students to the proper conduct of research through professional development programs at the department level (faculty advisory training, department and/or university level (OGAPS) workshop. Use of new graduate student performance review in conjunction with COALS final exam survey results will be used to determine progress in meeting our target and sharing those results with students in time for them to build on their research skills. In addition, our current action plans for the 2017-18 assessment cycle include: 1. Graduate Curriculum Revision 2. Apply expert knowledge in discipline 3. Conducting valid research The ANSC GPC identified that our graduate curriculum needs to be reassessed and reviewed as necessary. This effort (action plan 1) should address action plans 2 and 3 and aid in meeting outcome targets. This initiative resulted from the progress observed in revising our UG
curriculum and potential benefits in providing a more effective educational program for our UG students. Therefore, the ANSC GPC decided to take the same approach for our graduate degree program. Challenges to the graduate curriculum revision process is primarily the lack of expertise in curriculum redesign on the ANSC GPC. The Center for Teaching Excellence has assisted with our ANSC UG redesign and thus it makes sense for the CTE to be involved in the graduate curriculum revision process.

*CRITICAL* Provide an update for completed or ongoing action plans from the previous year(s). Discuss any successes, challenges, and/or obstacles the program/unit has experienced while implementing the Action Plan(s). Address whether or not the program/unit has seen any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address and why the action plan may/may not have resulted in improvements.

The ANSC Department has seen improvement in understanding and accepting the importance of assessment in improving our PhD graduate degree program. Our recent UG curriculum revision with CTE assistance has provided a successful framework to emulate for our proposed graduate curriculum revision. The primary assessment data collected for our PhD graduate degree programs is the COALS final exam assessment survey. Although this is an important tool for assessment data, it occurs at the end of a student's degree program. We have beta tested a graduate student performance review to collect student performance data on an annual basis for both the student and faculty advisor to identify difficulties earlier in the degree program. This should provide the department with useful assessment data to recommend program changes if adopted. However, the department's greatest challenge is revising the PhD graduate degree program curriculum to develop program learning outcomes and student learning outcomes that provide data to determine if we our meeting or exceeding the educational knowledge (Apply expert knowledge), skills and competencies (Conduct valid research) required of our PhD students to enter academic, industry or government positions. The department did not see any improvement in assessment results for the targeted Outcome(s) the Action Plan(s) were designed to address (Apply expert knowledge; Conduct valid research). These shortcomings may be due to lack of training/education in experimental design, laboratory techniques, data collection and record keeping via current graduate course offerings, workshops or increased faculty advisor guidance, training, or oversight. The proposed action plan to conduct a revision of our graduate curriculum may result in desired improvements.
APPENDIX: FACULTY LEADERSHIP ROLES & AWARDS

Animal Science Faculty Involvement, Leadership Roles and Awards
2012 – 2018

Ashley Arnold, Research Assistant Professor
• Professional Societies, Associations and Organizations
  o National Cattlemen's Beef Association, 2014-2015
  o American Meat Science Association, 2007-present
    ▪ RMC Program Planning Committee, 2015-present
    ▪ Scientific Information Committee, 2015-present
    ▪ C. Boyd Ramsey RMC Scholarship Award Selection Committee, 2018-present
  o International Association for Food Protection, 2009-present
    ▪ Meat and Poultry Professional Development Group, 2013-present
    ▪ Pre-Harvest Food Safety Professional Development Group, 2013-present
  o North American Meat Institute

Jason Banta, Associate Professor and Extension Specialist – Overton
• Professional Societies, Associations and Organizations
  o American Society of Animal Science
    ▪ Extension Education Committee, 2013
  o Southern Extension and Research Activities
    ▪ Executive Committee, 2015-present (Chairman, 2017)
• Awards, Honors and Recognitions
  o Extension Award, American Society of Animal Science Southern Section, 2017
  o Extension Superior Service Team Award, Texas A&M AgriLife Extension, 2016

Fuller Bazer, Regents Fellow, Distinguished Professor, Presidential Impact Fellow and O.D. Butler Chair
• Professional Societies, Associations and Organizations
  o Editorships
    ▪ Amino Acids, 2015-present
    ▪ Associate Editor, Journal of Animal Science and Biotechnology, 2009-present
    ▪ Veterinary Sciences, 2013-2016
    ▪ Associate Editor, Molecular Human Reproduction, 2010-2015
    ▪ Deputy Editor, American Journal of Reproductive Immunology, 2003-2013
  o Editorial Boards
    ▪ Amino Acids, 2013-present
    ▪ Veterinary Sciences, 2013-present
    ▪ Domestic Animal Endocrinology, 2010-present
    ▪ Reproduction in Domestic Animals, 2002-present
  o Society for the Study of Reproduction
    ▪ Nominating Committee, 2014-present
    ▪ Endowment Committee, 2013-present
    ▪ Program Committee, 2012-present
  o NIH Reproductive Biology Study Section, Ad Hoc Member, 1978-present
  o Texas A&M University
• Texas A&M University Executive Committee of Distinguished Professors, 2013-present
• Texas A&M University Transportation Services Advisory Committee, 2013-present
• Texas A&M University Council of Principal Investigators, 2014-present
• Search Committee for Dean and Vice Chancellor for Agriculture and Life Sciences, 2017
• Interdisciplinary Faculty of Reproductive Biology, Executive Committee, 2016-present
• Chair, Search Committee for Head of Department of Veterinary Physiology and Pharmacology, 2014
  o Faculty Member, World Class University Program in Biomodulation, Seoul National University, 2009-2013
  o The Kansas Biomedical Research Infrastructure Network, External Advisory Board Member, 2001-2013
  o Scientific Advisory Board
    ▪ Pregmama, 2010-present
    ▪ TauMedix, 2010-2016

• Awards, Honors and Recognitions
  o Alumni Hall of Fame, Centenary College of Louisiana, 2016
  o Morrison Award, American Society of Animal Science, 2014

Rodolfo Cardoso, Assistant Professor

• Professional Societies, Associations and Organizations
  o Society for the Study of Reproduction, 2010-present
  o American Society of Animal Science, 2013-present
  o Endocrine Society, 2014-present
  o International Gamma Sigma Delta Agricultural Honor Society, 2014-present
  o Texas A&M University
    ▪ Interdisciplinary Faculty of Reproductive Biology, 2017-present; currently Vice Chair
    ▪ Texas A&M Institute for Neuroscience, 2016-present

• Awards, Honors and Recognitions
  o Early Career Forum Travel Award, Endocrine Society, 2016
  o Postdoctoral Fellowship, The Lalor Foundation, 2015-2016
  o Larry Ewing Memorial Trainee Travel Fund Award, Society for the Study of Reproduction, 2014
  o USDA AgResearch Merit Award, 2012, 2014
  o Third Place, Trainee Research Platform Competition, Society for the Study of Reproduction, 2014
  o Dr. A.M. “Tony” Sorenson Jr. Achievement Award, Department of Animal Science, 2014
  o Tom Slick Graduate Research Fellowship, Texas A&M University, 2014
  o Graduate Student Presentation Travel Award, TAMU Association of Former Students, 2013

Bruce Carpenter, Professor and Extension Specialist – Fort Stockton

• Professional Societies, Associations and Organizations
  o Member, Texas A&M University College of Agriculture and Life Sciences Promotion and
Tenure Committee, 2017-2018

- **Awards, Honors and Recognition**
  - Specialist of the Year in Texas Agriculture Award, Texas County Agricultural Extension Agents Association, 2018
  - Texas A&M AgriLife Extension Superior Service Award for Team Excellence – Beef Quality Assurance Team, 2016

**Gordon Carstens, Professor**

- **Professional Societies, Associations and Organizations**
  - American Society of Animal Science
  - American Society for Nutritional Sciences
  - Plains Nutrition Council
  - American Registry of Professional Animal Scientists
  - Gamma Sigma Delta Outstanding Teacher Award, College of Agriculture and Life Sciences, DATE
  - Faculty Advisor, BUILD Command Team, Texas A&M University, 2013-present

**Alejandro Castillo, Associate Professor**

- **Professional Societies, Associations and Organizations**
  - Texas Association for Food Protection
    - TAFP Delegate, International Association for Food Protection, 2012-present
    - Treasurer, 2012-present
  - International Association for Food Protection
    - Chair, Affiliate Council, 2012-present
    - Member, Executive Board, 2012-present
    - Coordinator of the Latin American IAFP members, 2012-present

- **Awards, Honors and Recognition**
  - College of Agriculture and Life Sciences Dean's Award for Outstanding Achievement – Interdisciplinary Team, 2017
  - Professional Achievement Award, University of Guadalajara, 2015

**Jason Cleere, Associate Professor and Extension Specialist**

- **Professional Societies, Associations and Organizations**
  - Texas Beef Council Board of Directors, 2015-present
  - Texas and Southwestern Cattle Raisers Association Research Committee, 2012-present
  - Madison County Fair Association Board Member, 2012-2018
  - Texas Sustainable Agriculture Research and Education Advisory Council (2010-present)
  - Texas A&M University
    - Texas A&M Rudder/Memorial Student Center Advisory Council, 2010-present
    - Faculty Advisor, Texas Aggie Cattlewomen, 2008-present
  - Independent Cattlemen’s Association Board of Directors, 2008-present

- **Awards, Honors and Recognitions**
  - Texas A&M AgriLife Vice Chancellor’s Award for Excellence – Extension Specialist,
2017
- Texas A&M AgriLife Extension Superior Service Award – Beef Cattle Short Course, 2016
- Texas A&M AgriLife Extension Superior Service Award – Beef Production Boot Camp for Retailers, 2015
- Independent Cattlemen's Association of Texas Award, 2015

**Haley Collins**, Lecturer

- **Professional Societies, Associations and Organizations**
  - American Quarter Horse Association
  - National Reining Horse Association
  - National Cutting Horse Association
  - Equine Science Society
  - American Society of Animal Science

- **Awards, Honors and Recognitions**
  - AQHA World Championship Judging Contest – Reserve TAMU Horse Judging Team (Coach), 2016
  - American Society of Animal Science Southern Section Meeting Graduate Student Competition – 2nd Place, 2016
  - NCHA Collegiate Judging Contest – 1st Place, TAMU Horse Judging Team, 2015
  - Sam Houston State University College of Sciences Special Graduate Scholarship Award Recipient, 2015
  - Oklahoma State University Academic Quadrathlon Team – 2nd Place, Southern Regional Competition, 2014
  - AQHA World Championship – 1st Place, Oklahoma State University Horse Judging Team, 2012

**Reinaldo Cooke**, Associate Professor

- **Professional Societies, Associations and Organizations**
  - American Society of Animal Science, 2004-present
    - Beef Species Committee, 2015-2017; Chair, 2017
  - American Society of Animal Science Western Section, 2009-present
    - Executive Committee, 2016-present
      - Secretary/Treasurer, 2017-2018
      - President-Elect, 2018-2019
        - Beef Symposium Committee, Member, 2011-2015; Chair, 2016
        - Young Scholar Recognition Committee, 2015-2017
        - Strategic Planning Committee, 2015-2017
        - Advising/Coordinating Committee, Member, 2015-2016; Chair, 2017
  - American Society of Animal Science Southern Section, 2017-present
    - Physiology Program Committee, 2018-present
  - Grant Review Panels
    - USDA-NIFA Animal Health and Disease, 2012
  - National Beef Reproduction Leadership Team, 2015-present
  - Multistate Group NC-1201, Methods to Increase Reproductive Efficiency in Cattle,
Russell Cross, Professor

- **Professional Societies, Associations and Organizations**
  - President, Phi Tau Sigma, 2017
  - Founder and Inaugural President, National Association for the Advancement of Animal Science, 2012-2016
  - JBS USA Food Safety and Quality Advisory Committee, 2009-present
  - Board Member, International Stockmen’s Educational Foundation, 1986-present

- **Awards, Honors and Recognitions**
  - Special Recognition Award, Phi Tau Sigma, 2018
  - Texas A&M Beef Cattle Short Course Dedication, 2017
  - Southwest Meat Association Hall of Fame Inductee, 2017
  - Institute of Food Technologists Fellow, 2015
  - American Meat Science Association Mentor Recognition Award, 2015
  - Institute of Food Technologists Carl Fellers Award, 2014

Courtney Daigle, Assistant Professor

- **Professional Societies, Associations and Organizations**
  - American Society of Animal Science
  - International Society for Applied Ethology
  - Member, SYSCO’s Animal Welfare Advisory Council
  - Texas A&M University
    - Advisor, Texas A&M Welfare Judging Team, 2018-present
    - Advisory, Texas Aggie Cattlewomen, 2018-present

Kathrin Dunlap, Assistant Professor

- **Professional Societies, Associations and Organizations**
  - North American Colleges and Teachers of Agriculture, 2018-present
  - American Society of Animal Science, 2016-present
  - Texas A&M University
    - Advisor, Texas Aggie Cattlewomen, 2016-present
    - Member, College of Agriculture and Life Sciences Distance Education Advisory Council, 2016-present
    - Member, Search Committee for Texas A&M University Dean of Faculties, 2016
    - Chair, Intercollegiate Faculty of Reproductive Biology membership Committee

2014-present; Chair, 2017
- Multistate Group W-2173, Stress Factors of Farm Animals and Their Effects on Performance, 2009-2013
- Western Beef Resource Committee, Co-Chair, 2011-2017
2015-2017
  o Society for the Study of Reproduction, 2012-present

• Awards, Honors and Recognition
  o Montague Center for Teaching Excellence Scholar, College of Agriculture and Life Sciences, 2018-2019
  o Texas A&M Association of Former Students Distinguished Achievement Award for Teaching – College Level, 2017
  o College of Agriculture and Life Sciences Critical Thinking Academy Fellow, 2017
  o College of Agriculture and Life Sciences Honor Professor Award, 2016
  o College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Excellence in Early Career Teaching, 2015
  o Selection as Faculty Member for the Frontiers in Reproduction, Molecular and Cellular Applications and Concepts Program at the Marine Biological Laboratory, Woods Hole, MA, 2015

David Forrest, Professor
• Professional Societies, Associations and Organizations
  o Texas A&M University
    ▪ Faculty Senator, College of Agriculture and Life Sciences, 2018-present
    ▪ University Faculty Development Leave Committee, College of Agriculture and Life Sciences Representative, 2018-present
    ▪ Advisor, Texas A&M University Academic Quadrathlon Team, 2011-present
    ▪ Chair, Department of Animal Science Promotion and Tenure Committee, 2009-2016
  o American Society of Animal Science Southern Section, Academic Quadrathlon Committee, 2017-present
  o American Brahman Breeders Association, Scientific Advisory Board, 2015-present
  o American Society of Animal Science Triennial Reproduction Symposium Committee, 2010-2012

• Awards, Honors and Recognition
  o Selected to receive a Neuhaus-Shepardson Faculty Development Grant by the College of Agriculture and Life Sciences to attend the Teaching Professor Conference: Cutting Edge Learning for Exceptional Educators in Atlanta, GA, 2018
  o Advisor of the Year, Affiliated Student Organization, Saddle & Sirloin Club, Texas A&M University Student Activities, 2017
  o College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Excellence in Service, 2017
  o Texas A&M AgriLife Vice Chancellor's Award in Excellence for Special Services, 2017
  o American Society of Animal Science, Teaching Fellow, 2014
  o Saddle & Sirloin Club, Honorary Member, 2013

Leslie Frenzel, Instructional Assistant Professor
• Professional Societies, Associations and Organizations
  o American Meat Science Association
    ▪ Member, 2018 Long-Term Financial Planning Committee for the Intercollegiate Meat Judging Program
- Member, 2018 A-Division Development Committee
- Member, 2017 Reciprocal Meats Conference Planning Committee
- Member, 2017 Reciprocal Meats Convention Host Committee
- Member, 2017 Reciprocal Meats Convention Host Committee – Liaison for the Student Board of Directors
- 2017 Coaches Association: Reciprocal Meats Conference; Coaches Committee Clinic Planning Committee Chair
  - Southwest Meat Association
    - Member, 2018 Planning Committee
    - Member, Scholarship Committee, 2016 – present
    - Member, Golf Hole Sponsorship Committee, 2015 – present

- **Awards, Honors and Recognition**
  - Dean’s Outstanding Achievement Award for Excellence in Early Career Teaching, College of Agriculture and Life Sciences, 2018
  - Margaret Annette Peters Faculty Advising Award, Texas A&M University, 2016
  - Graduate Teaching Award of Merit, North American Colleges and Teachers of Agriculture, 2015
  - Distinguished Achievement Award for Graduate Student Teaching, Texas A&M University Association of Former Students, 2013
  - Ronnie L. Edwards Award for Outstanding Graduate Student Teaching, Department of Animal Science, 2013
  - Fightin’ Texas Aggie Meat Judging Team Coach, 2013
  - Bob Ondrusek Memorial Scholarship Award, Southwest Meat Association, 2012

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**Kerri Gehring**, Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - President and CEO, International HACCP Alliance, 2007-present
    - Member, Texas A&M Office of Graduate and Professional Studies, Graduate Diversity Fellowship Review Committee, 2018
    - Member, PI Advisory Committee for Research Security Office, Texas A&M Council of Principal Investigators, 2017
    - Member, Association of Former Students Teaching Award Selection Committee, 2016
    - Member, College of Agriculture and Life Sciences Awards Selection Committee, 2016
    - Co-Chair, Department of Animal Science Awards Committee, 2014-present
    - Member, Texas A&M University, University Scholar Selection Committee, 2011-2013
  - Member, Beef Industry Food Safety Council, 2017-present
  - American Meat Science Association
    - Member, Nomination Committee, 2015
    - Member, Undergraduate Travel Review Committee, 2015
    - Member, Scientific Information Committee, 2001-present
  - North American Meat Institute
    - Member, Research Advisory Committee, 2015-present
• Member, College of Experts, 2009-present
• Member, Educational Committee, 2000-present
  o International Association of Food Protection
    • Member, Food Law, Professional Development Group, 2018
    • Member, Food Safety Education, Professional Development Group, 2015-present
    • Member, Meat and Poultry Safety and Quality, Professional Development Group, 2014-present
    • Member, HACCP Utilization and Food Safety Systems, Professional Development Group, 2013-present
  o Member, JBS USA Food Safety and Quality Advisory Committee, 2014-present
  o Advisor, Texas Food Safety and Defense Task Force, 2006-2014

• **Awards, Honors and Recognition**
  o Texas A&M Association of Former Students Distinguished Achievement Award for Teaching – College Level, 2015
  o Industry Advancement Award, North American Meat Institute, 2015
  o Association of Former Students Achievement Award for Teaching at the College Level, 2014
  o American Meat Science Association’s Distinguished Extension-Industry Service Award, 2012

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Clare Gill, Professor

• **Professional Societies, Associations and Organizations**
  o Texas A&M University
    • Interim Head, Department of Agricultural Education, Leadership, and Communications, 2017-present
    • Chair, Texas A&M University Small Animal Imaging Committee, 2016
    • Texas A&M Faculty Ombuds Officer, 2013-2017
    • Member, Texas A&M Radiological Safety Committee, 2004-2013
    • Texas A&M Faculty Senator, 2011-2015
      • Member, Faculty Senate Planning Committee, 2013-2014
      • Member, Faculty Senate Bylaws Committee, 2015
      • Member, Faculty Senate Research Committee, 2011-2015
    • Facilitator, Texas A&M University Difficult Dialogues Program, 2011-2014
    • Mediator, Texas A&M University, 2007-present
    • Texas A&M Research Fellow – Core Facilities, Office of the Vice President for Research, 2015-2017
    • Texas A&M University ADVANCE Faculty Fellow, 2011-2014
  o American Society of Animal Science
    • Member, Breeding and Genetics Committee, 2016-present
    • Member, Southern Section Graduate Student Competition Committee, 2012-2017 (Chair, 2017)
  o Elected Member, International Society for Animal Genetics Executive Committee, 2016-present
  o Associate Editor, BMC Genomics, 2014-present
Jason Gill, Assistant Professor
- **Professional Societies, Associations and Organizations**
  - American Society for Microbiology, 2000-present
    - Chair-Elect, Division M (Bacteriophage), 2016-2019
  - International Association for Food Protection, Member, 2013-present
  - American Association for the Advancement of Science, 2013-present
  - International Society for the Viruses of Microbes, Member, 2011-present

Ron Gill, Professor, Extension Specialist and Associate Head for Extension
- **Professional Societies, Associations and Organizations**
  - National Cattlemen's Beef Association
    - Member, Cattle Health and Well-Being Committee, 2014-present
  - Texas and Southwestern Cattlers Association
  - Independent Cattlemen's Association of Texas
  - Member, Technical Advisory Board, Texas Grazing Lands Coalition, 2015-present
- **Awards, Honors and Recognition**
  - Texas A&M AgriLife Extension Superior Service Team Award – Texas A&M Beef Cattle Short Course, 2016
  - Texas A&M AgriLife Vice Chancellor’s Team Award – Retail Beef Boot Camps, 2015

Davey Griffin, Professor and Extension Specialist
- **Professional Societies, Associations and Organizations**
- **Awards, Honors and Recognitions**
  - American Meat Science Association Signal Service Award, 2013
  - American Meat Science Association Fellow, 2013

Tom Hairgrove, Associate Professor and Extension Specialist
- **Professional Societies, Associations and Organizations**
  - Member, Bovine Trichomoniasis Working Group, Texas Animal Health Commission, 2009-present
  - Member, United States Animal Health Association, 2009-present
  - Member, Academy of Veterinary Consultants, 1984-present
  - Member, Society for Theriogenology, 1983-present
  - Member, American Association of Bovine Practitioners, 1980-present
  - Member, American Veterinary Medical Association, 1974-present
  - Member, Texas Veterinary Medical Association, 1974-present
  - Member, American Veterinary Medical Association Steering Committee for FDA Policy on Veterinary Oversight of Antimicrobials, 2011-2015
  - President, American Association of Extension Veterinarians, 2012-2013
  - Member, National Board of Veterinary Medical Examiners, 2004-2013
• **Awards, Honors and Recognition**
  - Texas A&M AgriLife Vice Chancellor’s Award for Special Services, 2016
  - Texas A&M AgriLife Extension Award for Superior Service – Team Award (Beef Cattle Short Course), 2016
  - Specialist of the Year in Texas Agriculture, Texas County Agents Association, 2014
  - Texas A&M AgriLife Vice Chancellor’s Award in Excellence – Team Award, International Involvement, 2013
  - Distinguished Career Achievement Award for Outstanding Contribution to Veterinary Medicine, Texas Veterinary Medical Association, 2012

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**Dan Hale**, Professor and Extension Specialist

• **Professional Societies, Associations and Organizations**
  - Texas Beef Council Producer Education Committee Technical Advisory, 2012-present
  - Texas BQA Steering Committee, 2016-present
  - Certification and Recertification as a Livestock Welfare Auditor, Professional Animal Auditor Certification Organization (PAACO), Inc., 2009-present
  - RanchTV and RanchTV University Online Learning Center, Director, 2007-present

• **Awards, Honors and Recognition**
  - Texas A&M AgriLife Extension Superior Service Award – Texas A&M Beef Cattle Short Course Team, 2016
  - Texas A&M AgriLife Extension Superior Service Award – Beef Production Boot Camp for Retailers Project Team, 2015
  - Texas A&M University Association of Former Students Distinguished Achievement Award for Extension and Service, 2014
  - Oklahoma State University Animal Science Department Distinguished Advanced Graduate of Distinction, 2013
  - Fellow and Service Signal Award, American Meat Science Association, 2013

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**Jim Heird**, Glenn Blodgett Equine Chair, Executive Professor and Coordinator, Texas A&M Equine Initiative

• **Professional Societies, Associations and Organizations**
  - President, American Quarter Horse Association, 2018
  - Director, National Advisory Board, National Collegiate Equestrian Association, 2017-present
  - Director, Texas Racing Hall of Fame, 2017-present
  - American Quarter Horse Judge, 1976-2017
  - Superintendent, American Quarter Horse Association Ranch Horse Versatility World Championship Show
  - Member, American Quarter Horse Association Executive Committee, 2015-present
  - Ex Officio Director, Houston Livestock Show and Rodeo, 2014-present
  - Chair, International Committee, American Quarter Horse Association, 2013-present
  - Chair, Welfare Committee, American Quarter Horse Association, 2011-2014

• **Awards, Honors and Recognition**
  - Inductee, Texas Cowboy Hall of Fame, 2017
  - Honorary Vice President and Life Member, Argentina Quarter Horse Association, 2016-
Recipient, Glenn Blodgett Equine Chair, Texas A&M University, 2014

**Andy Herring**, Professor and Holder of the John K. Riggs ’41 Beef Cattle Professorship

- **Professional Societies, Associations and Organizations**
  - USAID-Winrock International Volunteer (Asia Farmer-to-Farmer Program MYA 126 – Beef Industry Assessment, Yangon, Myanmar, 2018
  - Member, Fulbright Specialist Roster in Agriculture, Fulbright Program, US Department of State, Bureau of Educational and Cultural Affairs, 2016-2021
  - Texas A&M University
    - Member, Texas A&M University Institutional Animal Care and Use Committee, 2004-present
    - Member, College of Agriculture and Life Sciences Distance Education Committee, 2014-2016
  - Editorial Board, Revista Brasileira de Zootecnia (Brazilian Journal of Animal Science), 2015-2017
  - Member, American Society of Animal Science Student Involvement and Services Committee, 2013-2016
  - Ad Hoc Reviewer, Journal of Animal Science, 2012-present

- **Awards, Honors and Recognition**
  - Awardee, University of Michigan Teach-Out Invitational Conference, Award topic: *The sustainability of beef cattle production and its role in food security*, 2018
  - Winrock International Volunteer of the Month (March 2018); Nominated by Myanmar Winrock F2F staff for volunteer activity
  - Faculty Development Leave, Department of Animal and Wildlife Sciences, University of Pretoria, South Africa, 2016

**Chelsie Huseman**, Extension Program Specialist I

- **Professional Societies, Associations and Organizations**
  - Equine Science Society, 2007-present
  - National Association of Equine Affiliated Academics, 2011-2014
  - American Quarter Horse Association, 2000-present

**Nancy Ing**, Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Member, Texas A&M University Academic Civil Rights Investigation Committee, 2017-present
    - Member, Faculty of Genetics Membership Committee, 2015-present
    - Faculty Advisor, Guide Dogs for the Blind, 2015-present
    - Member, College of Agriculture and Life Sciences Climate Council, 2014-present
    - Member, College of Agriculture and Life Sciences Promotion and Tenure Committee, 2011-2013
    - Founder and Organizer, Ag Women Excited to Share Opinions, Mentoring and Experiences (AWESOME), 2009-present
    - Faculty Advisor, Aggies for Animal Rescue, 2009-present
- Mentor, Women's Faculty Network, 2008-present
  - Associate Editor (Genetics) for Small ruminant Research, 2013-present
  - Associate Editor and Editorial Board Member, Scientifica (Molecular Biology), 2012-present

Chris Kerth, Associate Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Member, Texas A&M University Mass Spec Core Committee, 2016-present
    - Member, Faculty Senate, 2015-2018
      - Member, Faculty Senate Budget Information Committee, 2015-2018
      - Member, Ag Caucus of Faculty Senate, 2015-2018
    - Member, Texas A&M University Information Technology Committee, 2014-2015

Cliff Lamb, Professor and Head

- **Professional Societies, Associations and Organizations**
  - American Society of Animal Science
    - Member, Physiology Committee, 2014-present

- **Awards, Honors and Recognition**
  - Physiology and Endocrinology Award, American Society of Animal Science, 2018
  - Communication Award for Best Website, Florida Association of County Agricultural Agents, 2016
  - Animal Management Award, American Society of Animal Science, 2015
  - Dallas Townsend Extension Professional Enhancement Award, 2015
  - Researcher of the Year Award, Florida Cattlemen’s Association, 2015
  - Florida Research Foundation Professor Award, 2014
  - Outstanding State Specialist, Florida Association of County Agricultural Agents, 2014
  - USDA-NIFA Partnership Award for Multistate Efforts (with six colleagues), 2013

Jessica Leatherwood, Assistant Professor

- **Professional Societies, Associations and Organizations**
  - American Quarter Horse Association
    - Voting Member, International Committee, 2017
    - Organized and conducted three two-day clinics in Costa Rica, Panama and Colombia in conjunction with the AQHA International Horsemanship Award
  - Board Member, American Youth Horse Council, 2017
  - National Advisor, American Collegiate Horseman’s Association, 2017
  - Superintendent, San Antonio Livestock Show and Rodeo, Youth Horsemanship Challenge, 2017
  - Superintendent, National Western Stock Show, Youth Hippology Contest, 2017
  - Member, San Antonio Livestock Show and Rodeo, Youth Horse Skillathon Committee, 2017
  - Texas A&M University
    - Parsons Mounted Cavalry, Game Day Operations Committee, 2017
    - Department of Animal Science Undergraduate Scholarship Committee, 2017
Department of Animal Science Undergraduate Curriculum Committee, 2016-present
  o American Society of Animal Science Southern Section
  o Undergraduate Research Committee, 2017
  o Equine Science Society
  o Graduate Competition Committee, 2017
  o North American Colleges and Teachers of Agriculture
  o Guest Reviewer
  o Journal of Animal Science
  o Journal of Equine Veterinary Science
  o Journal of Domestic Animal Endocrinology
  o State 4-H Roundup Judge, 2017

Awards, Honors and Recognition
  o National Collegiate Equestrian Association Distinguished Alumnus for Contributions in Education, 2017
  o College of Sciences Faculty Excellence in Research, Sam Houston State University, 2016
  o Teaching Award of Merit, North American Colleges and Teachers of Agriculture, 2014

Paige Linne, Lecturer

  Professional Societies, Associations and Organizations
  o American Quarter Horse Association
  o National Collegiate Equestrian Association

  Awards, Honors and Recognition
  o Young Alumni Award, National Collegiate Equestrian Association, 2017

Charles Long, Professor and Resident Director for Research – Overton

  Professional Societies, Associations and Organizations
  o American Society of Animal Science
  o American Registry of Professional Animal Scientists
  o Louisiana State University Block and Bridle Alumni Association
  o Council for Agriculture Science and Technology
  o Alpha Zeta
  o Phi Eta Sigma
  o Gamma Sigma Delta
  o Phi Kappa Phi
  o Omicron Delta Kappa
  o Member, Committee for Assessment of Animal Agricultural Research
  o Member, Agricultural Program Management Committee
  o Chair, Agriculture Program East Regional Council.

  Awards, Honors and Recognition
  o Build East Texas organization Award of Excellence in Agricultural Research and Extension, 2017
  o Board of Directors, Overton Economic Development Corporation, 2013-2017
  o East Texas State Fair Board of Directors, 2006-2012

Bill Mies, Visiting Professor
Rhonda Miller, Professor and Texas A&M AgriLife Research Faculty Fellow

- **Professional Societies, Associations and Organizations**
  - American Meat Science Association
    - President, 2017-2018
    - President-Elect, 2016-2017
    - Member, Board of Directors and Executive Council, 2016-present
    - Editor, American Meat Science Association Cooking and Sensory Guidelines, 2014-present
  - Texas A&M University
    - Chair, College of Agriculture and Life Sciences Promotion and Tenure Committee, 2017
    - Member, Texas A&M University Institutional Review Board, 2013-2017
  - National Cattlemen's Beef Association Beef Flavor Subcommittee, 2014-present
  - Member, National Pork Board Animal Science Committee, 2014-2018
  - USDA AMS Consumer Implications and Predictive Technology Subcommittee, 2015
  - Associate Editor, Encyclopedia of Meat Science, 2014

- **Awards, Honors and Recognition**
  - Texas A&M AgriLife Research Faculty Fellow, 2018
  - American Meat Science Association Research Award, 2015

Wes Osburn, Associate Professor and Associate Head for Academic Programs

- **Professional Societies, Associations and Organizations**
  - American Meat Science Association
  - Phi Tau Sigma

- **Awards, Honors and Recognition**
  - Meat Processing Award, American Meat Science Association, 2016

Joe Paschal, Professor and Extension Specialist – Corpus Christi

- **Awards, Honors and Recognition**
  - Superior Service Award – Team, Texas A&M AgriLife Extension, 2016
  - South Region Outstanding Specialist, Texas A&M AgriLife Extension, 2016
  - Special Service Award, San Antonio Livestock Show, 2015
  - State Specialist of the Year in Texas Agriculture, Texas A&M AgriLife Extension, 2013

Sushil Paudyal, Instructional Assistant Professor

- **Professional Societies, Associations and Organizations**
  - American Dairy Science Association
  - American Society of Animal Science
  - Professional Animal Scientist Accreditation, American Registry of Professional Animal Scientists

Juan Piñeiro, Assistant Professor and Extension Specialist

- **Professional Societies, Associations and Organizations**
- American Dairy Science Association
- Dairy Cattle Reproduction Council
- Dairy Cattle Welfare Council
- Texas Animal Nutrition Council

**Awards, Honors and Recognition**
- Ohio Dairy Cattle Health and Management Certificate Program, 2017

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**Ky Pohler,** Assistant Professor

**Awards, Honors and Recognition**
- University of Tennessee Department of Animal Science Buford E. Ellington Distinguished Faculty Award for Research, Teaching and Extension, 2017
- University of Tennessee Research Foundation Inventor Spotlight, 2017
- University of Tennessee Research Foundation Innovation Driver Award, 2016
- SEC Travel and Collaboration Award, 2015
- American Society of Animal Science Agri-King Outstanding Animal Science Young Scholar Award, 2015
- Gamma Alpha Gamma Dissertation Fellowship, 2014
- USDA-SSR Ag Research Merit Award, 2014

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**Shawn Ramsey,** Professor and Assistant Head for Undergraduate Programs

**Professional Societies, Associations and Organizations**
- Texas A&M University
  - Member, Texas A&M Study Abroad Development Committee, 2015-present
  - Faculty Coordinator, Texas A&M Wool Judging Team, 2012-present
  - Faculty Coordinator, Texas A&M Breeding Sheep Show Team, 2012-present
  - Chair, Department of Animal Science Scholarship Committee, 2012-present
  - Coordinator, Aggieland Lamb and Goat Camps, 2012-present
  - Faculty Coordinator, Louis Pearce Pavilion, 2012-present
  - Member, College of Agriculture and Life Sciences Academic Program Review Committee, 2012
- Advisory Board, Texas 4-H Livestock Ambassadors, 2017-present
- First Vice President, Texas Club Lamb Association, 2015-present
- Texas Lamb Breeders Association
  - Member, Advisory Board, 2014-present
  - President, 2010-2014
- Coordinator, Texas Junior Livestock Association Lamb and Goat Camp, 2013-2015
- Goat Superintendent, Houston Livestock Show and Rodeo, 2012-present
- Chairman, District II, Texas Sheep and Goat Raisers Association, 2012-present
- Member, Board of Directors, Texas Junior Livestock Association, 2012-present
- Member, Board of Directors, Brazos County Youth Livestock Association, 2012-present
- Member, Board of Directors, American Southdown Sheep Association, 2009-2012

**Awards, Honors and Recognition**
- Texas A&M University Association of Former Students – Gail and David Marion Teaching Award, 2017
Ron Randel, Professor, Regents Fellow and Texas A&M AgriLife Research Senior Faculty Fellow – Overton

- **Awards, Honors and Recognition**
  - American Brahman Breeders Association Friend of the Year, 2016
  - Distinguished Alumni – Lifetime Career Award, Department of Animal Sciences, Purdue University, 2015
  - American Society of Animal Science L.E. Casida Award, 2012

Reid Redden, Associate Professor and Extension Specialist – San Angelo

- **Professional Societies, Associations and Organizations**
  - Member, American Lamb Industry Roundtable Committee, 2017-present
  - Advisor, American Goat Federation, 2017-present
  - District Director, Texas Sheep and Goat Raisers Association, 2015-present
  - Superintendent, National 4H/FFA Wool & Mohair Contest, 2015-present
  - State Committee Member, Texas 4H/FFA Sheep and Goat Validation Program, 2015-present
  - Chairman, National Sheep Improvement Program, 2013-present
  - Member, Genetic Stakeholders, American Sheep Industry Association, 2013-present
  - Member, eXtension Sheep Community of Practice Leadership Team, 2013-present
  - Member, Production, Education, and Research Council, American Sheep Industry Association, 2010-present

- **Awards, Honors and Recognition**
  - Myron and Muriel Johnsrud Excellence in Extension/Outreach Award, South Dakota State University, 2012

Penny Riggs, Associate Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Member, Texas A&M Vice President for Research Search Committee, 2017
    - Chair, TAMUS Data Security Faculty Advisory Team, 2017
    - Founder, Mass Spectrometry Collaborative Core Initiative, 2016
    - Founding Chair, Texas A&M University Research Development Fund Advisory Committee, 2015-2018
    - Chair, Animal Science Ranching Exhibit, George Bush Presidential Library, 2015-2017
    - Member, Texas A&M Council for the Built Environment, 2014-2016
David Riley, Professor

- **Professional Societies, Associations and Organizations**
  - Member, National Animal Germplasm Program's Beef Species Committee, 2013-present
  - Advisor, Texas A&M Genetics Graduate Student Association, 2011-present

- **Awards, Honors and Recognition**
  - American Brahman Breeders Association Brahman Friend of the Year Award, 2011

Jim Sanders, Professor

- **Awards, Honors and Recognition**
  - National Brahman Show Dedicatee, 2015

M. Carey Satterfield, Associate Professor

- Mexican and U.S. Latin American Research Fellow

Jeff Savell, University Distinguished Professor and E.M. “Manny” Rosenthal Chair

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Member, Executive Committee, Distinguished Professors, Texas A&M University, 2016-2019
• Member, College of Agriculture and Life Sciences Distinguished Professors Advisory Committee, 2014-present
• Member, Honorary Degree Committee, Texas A&M University, 2014-present
• Member, Administrative Council, Hagler Institute for Advanced Study, Texas A&M University, 2014-present
  o American Meat Science Association
    • Member, Planning Committee, 2020 International Congress of Meat Science and Technology to be held in the United States and hosted by the American Meat Science Association, 2015-present
    • American Meat Science Association representative, Council for Agricultural Science and Technology (CAST), 2009-2014
  o Editorial Board, Meat and Muscle Biology, 2016-present
  o Editorial Board, Meat Science, 2004-present
  o Board of Directors, Foodways Texas, 2010-present
  o Member, JBS USA Food Safety and Quality Advisory Committee, 2008-present
  o Member, Bloomin’ Brands Advisory Committee on Food Safety and Animal Well Being, 2004-present
  o Board of Scientific Advisors, American Council on Science and Health, 1995-present
  o Superintendent of Steer, Lamb, and Barrow Carcass Shows, Houston Livestock Show and Rodeo, 1991-present
• Awards, Honors and Recognition
  o Gail W. and David P. Marion ’65 Teaching Award in Memory of Dr. Richard C. Potts ’45, College of Agriculture and Life Sciences, Texas A&M University, 2016
  o Texas A&M University Fish Camp Namesake, 2015
  o American Society of Animal Science, ASAS Fellow (Research Category), 2014
  o University Distinguished Professor, 2014
  o Visiting Professor, University of Padova (Italy), 2014
  o United States Department of Agriculture Food and Agricultural Sciences Excellence in Teaching Award, 2013

Jason Sawyer, Associate Professor and Associate Head; Superintendent, McGregor Research Center
• Professional Societies, Associations and Organizations
  o Texas A&M University
    • Texas A&M University Agricultural Animal Care and Use Committee
      • Member, 2017-present
      • Vice Chair, 2013-2017
    • Senator, Texas A&M University Faculty Senate, 2010-2013
  o Global Roundtable for Sustainable Beef
    • Chair, Technical Working Group on Antibiotics, 2016
    • Member, 2015
  o US Roundtable for Sustainable Beef
    • Indicator Working Group Steering Committee, 2016
    • Member, 2015

Chris Skaggs, Professor and San Antonio Livestock Exposition, Inc. Chair in Animal Science, Associate Dean for Undergraduate Development, College of Agriculture and Life Sciences
• **Professional Societies, Associations and Organizations**
  o Texas A&M University
    ▪ Chairman, College of Agriculture and Life Sciences Scholarship Program, DATE
    ▪ Member, Texas A&M University Scholarship Committee, 2009-present
    ▪ Member, Career Center Advisory Committee, 2009-present
    ▪ Faculty Advisor, College of Agriculture and Life Sciences Student Council, 2009-present
    ▪ Faculty Advisor, College of Agriculture and Life Sciences Freshman Leadership Experience, DATE
    ▪ Faculty Advisor, College of Agriculture and Life Sciences Career Fairs, DATE
    ▪ Facilitator/Coordinator of On-Campus 4-H and FFA Workshops and Competitions, 2009-present
    ▪ Administrator, T.R. Greathouse Competitive Teams Endowment, College of Agriculture and Life Sciences Student Council, 2009-present
    ▪ Member, College of Agriculture and Life Sciences Academic Appeals Committee, 2009-present
    ▪ Co-Chairman, College of Agriculture and Life Sciences New Student Conference Program, 2009-present
    ▪ Chairman, Texas A&M Athletics Strategic Planning Committee, 2013-2014
  o Agricultural Consortium of Texas
    ▪ President, 2015-2016
    ▪ Texas A&M Representative, 2009-present
  o Chairman, Texas FFA Livestock Evaluation Career Development Event Test Bank Update, 2017-2021
  o Houston Livestock Show and Rodeo
    ▪ Superintendent, Junior Market Steer Show, 2000-present
    ▪ Superintendent, Intercollegiate Livestock Judging Contests, 1993-present
    ▪ Contest Coordinator, 2009-present
    ▪ Member, Brazos County Go Texas Panning Committee, 2009-present
    ▪ Co-Superintendent, International Agri-Summit, 1995-present
  o San Antonio Livestock Exposition
    ▪ Assistant Superintendent, 4-H/FFA Livestock Judging Contest, 1995-present
    ▪ Assistant Superintendent, Market Steer Show, 2003-present
    ▪ Intern Coordinator, DATE
    ▪ Superintendent, Beef Cattle Skillathon, 2010-present
  o Chairman, National Collegiate Livestock Judging All American Selection Committee, 2007-present
    ▪ Member, Board of Directors, Ag workers Mutual Auto Insurance, 2012-present
    ▪ Associate Editor, Texas Journal of Agriculture and Natural Resources, 2009-present

• **Awards, Honors and Recognition**
  o Texas A&M Athletics Council Delegate to Chick-fil-A Bowl, 2014
  o Black Hawk East College Agriculture Merit Award for outstanding service in training young people for careers in agriculture, 2014
  o Texas A&M Athletics Council Delegate to Cotton Bowl Classic, 2013
Gary Smith, Visiting Professor

- **Awards, Honors and Recognition**
  - American Meat Science Association Education Foundation, Mentor Recognition, 2015
  - Colorado State University College of Agricultural Sciences Team Award, 2015
  - Texas A&M University, Department of Animal Science Outstanding Alumni Award, 2013
  - American Meat Science Association, Fellow, 2012

Steve Smith, Regents Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Chair, College of Agriculture and Life Sciences Climate Committee, 2016-present
    - Chair, Department of Animal Science Climate Committee, 2015-present
    - Chair, Department of Animal Science Promotion and Tenure Committee, 2015-present
  - Section Editor, Frontiers in Genetics, 2016-present
  - Associate Editor, Editorial Board, Animal Nutrition, Frontiers in Veterinary Science, 2013-present
  - Co-Chair, Animal Genetic Improvement and Healthy Farming, Yangling International Agriculture Science Forum, 2012

- **Awards, Honors and Recognition**
  - Texas A&M AgriLife Faculty Fellow designation, 2015
  - Regents Professor designation, Texas A&M University, 2013

Matt Taylor, Associate Professor

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Co-Chair, Graduate Faculty, Department of Nutrition and Food Science, 2012-2014
      - Faculty Advisor, Texas A&M Food Science Club, 2009-present
    - Chair, Development Committee, Phi Tau Sigma Society, 2017-present
    - Member, International Association for Food Protection Food Protection Trends Management Committee, 2017-present
    - Co-Advisor, Alpha Zeta, Texas A&M Chapter, 2015-present
    - Treasurer, Gamma Sigma Delta, Texas A&M Chapter, 2015-present
    - Chair, Institute of Food Technologists – Food Microbiology Division Leadership Team, 2015-2016
    - Chair, Constitution and Bylaws Committee, Phi Tau Sigma Society, 2014-2016
    - Secretary, Institute of Food Technologists – Food Microbiology Division Leadership Team, 2014-2015
    - Chair-Elect, Institute of Food Technologists – Food Microbiology Division Leadership Team, 2014-2015
    - Editorial Boards
- Journal of Food Protection, 2007-present
- Food Protection Trends, 2008-present
- International Journal of Food Microbiology, 2016-present
- Food Microbiology, 2017-present
  - Member, Institute of Food Technologists Scientific Program Committee – Food Microbiology Subgroup, 2012-2013

- Awards, Honors and Recognition
  - College of Agriculture and Life Sciences Outstanding Achievement Award for Multidisciplinary Team Research, 2017

**Luis Tedeschi, Professor and Texas A&M AgriLife Research Faculty Fellow**

- Professional Societies, Associations and Organizations
  - Member, Beef National Research Council (National Academy of Sciences), 2013-2016
  - Member, Chugnam National University Global network on Adaptation to Climate Change in Livestock Science, South Korea, 2013-present
  - Member, Modeling Committee of the National Animal Nutrition Program, 2012-present

- Awards, Honors and Recognition
  - American Feed Industry Association Ruminant Nutrition Award, 2017
  - ARPAS Diplomate of American College of Animal Nutrition, 2017
  - Honorary Professor, Dipartimento di Scienze Agraria, University of Sassari (Italy), 2017-present
  - Texas A&M AgriLife Research Faculty Fellow, 2016
  - São Paulo Research Foundation (FAPESP) Scholarship Award for Visiting Professor in Brazil, 2013
  - J. William Fulbright Foreign Scholarship Award, 2013
  - Texas A&M AgriLife Vice Chancellor's Award for Excellence in International Involvement, 2012
  - Sir Frederick McMaster Fellowship Award, 2011

**Mike Tomaszewski, Visiting Professor and Professor & Extension Specialist Emeritus**

- Professional Societies, Associations and Organizations

- Awards, Honors and Recognition

**Tom Welsh, Professor**

- Professional Societies, Associations and Organizations
  - Texas A&M University
    - Executive Treasurer, Texas A&M AgriLife Research Faculty Association, 2012-present
    - Co-Chair, Department of Animal Science Awards Committee, 2009-present
  - Past President, American Society of Animal Science Southern Section, 2012
  - Associate Editor, domestic Animal Endocrinology, 2009-2017

- Awards, Honors and Recognition
  - American Society of Animal Science Research Fellow Award, 2018
o American Society of Animal Science Physiology and Endocrinology Award, 2016
o College of Agriculture and Life Sciences Dean's Award for Faculty Mentoring, 2014
o American Society of Animal Science Southern Section Distinguished Service Award, 2014
o Texas A&M AgriLife Research Faculty Fellow, 2013

**Travis Whitney**, Associate Professor – San Angelo
• **Professional Societies, Associations and Organizations**
  o Texas A&M University
    ▪ Member, Texas A&M AgriLife Council of Principal Investigators, 2011-2014
    ▪ Member, Texas A&M AgriLife Agriculture Animal Care and Use Committee, 2012-present
    ▪ Member, Texas A&M Department of Animal Science Facility and Animal Review Committee, 2017-present
  o American Society of Animal Science
    ▪ Chair, “Ruminant Nutrition IV: Feed Intake Level” session, 2018
    ▪ Member, Beef Species Session, 2017
    ▪ Chair, Small Ruminant Session, 2016
  o American Society of Animal Science Western Section
    ▪ Member, Graduate Student Competition Committee, 2018
    ▪ Chair, Sheep and Goat Committee, 2015
    ▪ Chair, Beef Cattle Extension Committee, 2012-2013
  o Member, American Registry of Professional Animal Scientists, 2002-present
  o Member, Society for Range Management, National and Texas Chapters, 2005-present
  o Member, Western Extension, Research, and Academic Coordinating Committee 039 (WERA-039); *Coordination of Sheep and Goat Research and Education Programs for the Western States*
    ▪ Secretary, 2010-2011
    ▪ Chair, 2011-2012; 2014-2015
  o American Society of Animal Science Southern Section
    ▪ Small Ruminant Production Committee, Member, 2013-2016; Chair, 2015-2016
    ▪ Resolutions Committee, Member, 2018-2020
  o Member, Texas Sheep and Goat Raisers Association, 2007-present
  o Member, International Goat Association, 2007-present
  o Member, State Forage and Beef Workers Group, 2010-present
  o Member, Multistate Research and Coordinating Committee and Information Exchange Group NCERA-214; *Increased Efficiency of Sheep Production*, 2017-present
    ▪ Secretary, 2017-2018; Chair, 2018-2019
  o Member, American Sheep Industry Association, Producer Education and Research Council Board, 2017-present
  o Member, Texas and Southwestern Cattle Raisers Association, 2017-present
    ▪ Member, Agricultural Research and Education Committee, 2018-present

**Tryon Wickersham**, Associate Professor
• **Professional Societies, Associations, and Organizations**
  o Texas A&M University
    ▪ Advisory Board, Center for Teaching Excellence, Texas A&M University, 2017-present
Chair, Department of Animal Science Undergraduate Curriculum Revision Committee, 2016-present
- Institutional Animal Care and Use Committee (IACUC), Texas A&M University, 2014-present
- Faculty Senate, Texas A&M University, 2011-2014
- Advisor, Saddle & Sirloin Club, 2008-2010
- Advisor, Alpha Zeta, 2012-2014
  - National Cattlemen's Beef Association Policy Committee Member and Texas Cattle Feeders Representative, 2014-present
  - Chair, Ruminant Nutrition Section, American Society of Animal Science Southern Section, 2015
  - Academic Representative, Liquid Feed Committee, American Feed Industry Association, 2007-2014
  - Member, College of Agriculture and Life Sciences Grand Challenges Committee, 2014-present
  - Research Committee Chair, American Feed Industry Association Liquid Feed Committee, 2011-2014
  - Editorial Board, Algal Research, 2012-2015

- **Awards, Honors and Recognition**
  - Center for Teaching Excellence Curriculum Fellow, 2017
  - North American Colleges and Teachers of Agriculture Teaching Award of Merit, 2014
  - Fish Camp Namesake, 2014
  - College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Excellence in Teaching, 2013
  - Texas A&M University Association of Former Students Distinguished Achievement Award for Teaching – University Level, 2013
  - College of Agriculture and Life Sciences Honor Professor, 2013
  - Texas A&M University Association of Former Students Distinguished Achievement Award for Teaching – College Level, 2011

**Gary Williams**, Professor, Regents Fellow and Texas A&M AgriLife Research Faculty Fellow – Beeville

- **Professional Societies, Associations and Organizations**
  - Texas A&M University
    - Member, College of Agriculture and Life Sciences Promotion and Tenure Committee, 2018-present
    - Member, Texas A&M AgriLife Research Faculty Fellows Award Review Committee, 2015
    - Member, Graduate Program Committee, Interdisciplinary Faculty of Reproductive Biology, 2017-present
    - Member, Executive Committee, Interdisciplinary Faculty of Reproductive Biology, Texas A&M University, 2013-2017
    - Co-Chair, Agricultural Animal Care and Use Committee, Texas A&M AgriLife Research, 2016-present
  - Editorial Board, Biology of Reproduction, 2015-2017
  - Invited Author: *Female Puberty: Nutrition and Endocrinology* in Encyclopedia of
Reproduction, 2017
  o Member, Nominating Committee, Society for the Study of Reproduction, 2015-2016
  o Chair, Neuroendocrinology of Puberty Session, Tenth International Ruminant Reproduction Symposium, Foz do Iguaçu, Brazil, 2018
  o Editor-in-Chief, Domestic Animal Endocrinology, 2009-2017

• Awards, Honors and Recognition
  o American Society of Animal Science Research Fellow Award, 2017

Guoyao Wu, University Distinguished Professor, University Faculty Fellow and Texas A&M AgriLife Research Faculty Fellow

• Societies, Associations and Organizations
  o Co-President, 14th International Conference on Amino Acids, Peptides and Proteins, 2015
  o President, 13th International Conference on Amino Acids, Peptides and Proteins, 2014
  o Member, American Association for the Advancement of Science, 2012-present
  o Member, Swine Nutrition and Production System Advisory Board, China 2013-present
  o Member, International Advisory Board, The Japan Society for Amino Acid Sciences, 2013-present
  o Chair, Animal Amino Acid Nutrition Symposium, 11th World Congress of animal Production, 2013
  o Editor, SpringerPlus: Amino Acids Collections, 2012-present
  o Managing Editor, Frontiers in Bioscience, 2012-present
  o Editor, Amino Acids, 2012-present
  o Editor, Journal of Amino Acids, 2012-present
  o Editorial Board, Diabetes and Lipid Research, 2013-present

• Awards, Honors and Recognition
  o Morrison Award, American Society of Animal Science, 2018
  o One of 10 most-cited scientists in the field of agricultural sciences worldwide, 2017
  o Most Cited Author and a Most Influential Mind, Web of Science, 2015
  o Most Cited Author, Institute of Science, 2013
  o Sigma Xi Distinguished Scientist Award, 2013

Jennifer Zoller, Assistant Professor and Extension Specialist

• Professional Societies, Associations and Organizations
  o American Society of Animal Science
  o Equine Science Society
Table 10.1  Department of Animal Science faculty hires and departures: 2012-2017.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Hire Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Hires</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ashley Arnold</td>
<td>Research Assistant Professor, Meat Science <em>(Academic Professional Track)</em></td>
<td>September 1, 2013</td>
</tr>
<tr>
<td>Rodolfo Cardoso</td>
<td>Assistant Professor, Physiology of Reproduction <em>(Tenure Track)</em></td>
<td>June 1, 2016</td>
</tr>
<tr>
<td>Haley Collins</td>
<td>Lecturer, Equine Science <em>(Academic Professional Track)</em></td>
<td>September 1, 2016</td>
</tr>
<tr>
<td>Reinaldo Cooke</td>
<td>Associate Professor, Beef Cattle <em>(Tenured)</em></td>
<td>September 1, 2017</td>
</tr>
<tr>
<td>Courtney Daigle</td>
<td>Assistant Professor, Animal Welfare <em>(Tenure Track)</em></td>
<td>January 1, 2016</td>
</tr>
<tr>
<td>Kathrin Dunlap</td>
<td>Assistant Professor, Physiology of Reproduction <em>(Tenure Track)</em></td>
<td>January 1, 2013</td>
</tr>
<tr>
<td>Leslie Frenzel</td>
<td>Instructional Assistant Professor, Animal Science <em>(Academic Professional Track)</em></td>
<td>January 1, 2015</td>
</tr>
<tr>
<td>Jason Gill</td>
<td>Assistant Professor, Bacteriophages <em>(Tenure Track)</em></td>
<td>January 1, 2013</td>
</tr>
<tr>
<td>Thomas Hairgrove</td>
<td>Associate Professor &amp; Extension Specialist, Herd Health, Beef Cattle <em>(Academic Professional Track)</em></td>
<td>January 1, 2016</td>
</tr>
<tr>
<td>Chelsie Huseman</td>
<td>Extension Program Specialist I, Equine <em>(Academic Professional Track)</em></td>
<td>January 1, 2017</td>
</tr>
<tr>
<td>Jenny Jennings</td>
<td>Assistant Professor, Animal Nutrition <em>(Academic Professional Track)</em></td>
<td>October 30, 2013</td>
</tr>
<tr>
<td>Lamb, Cliff</td>
<td>Professor and Head <em>(Tenured)</em></td>
<td>March 1, 2017</td>
</tr>
<tr>
<td>Jessica Leatherwood</td>
<td>Assistant Professor, Equine Science <em>(Tenure Track)</em></td>
<td>September 1, 2016</td>
</tr>
<tr>
<td>Anna Morrison</td>
<td>Instructional Assistant Professor, Equine Science <em>(Academic Professional Track)</em></td>
<td>November 1, 2015</td>
</tr>
<tr>
<td>Chad Paulk</td>
<td>Assistant Professor, Swine Nutrition <em>(Tenure Track)</em></td>
<td>August 1, 2014</td>
</tr>
<tr>
<td>Brant Poe</td>
<td>Lecturer, Animal Science <em>(Academic Professional Track)</em></td>
<td>August 13, 2012</td>
</tr>
<tr>
<td>Reid Redden</td>
<td>Associate Professor &amp; Extension Dairy Specialist <em>(Academic Professional Track)</em></td>
<td>March 1, 2015</td>
</tr>
<tr>
<td>Sarah White</td>
<td>Assistant Professor, Equine Science <em>(Tenure Track)</em></td>
<td>June 1, 2016</td>
</tr>
<tr>
<td>Jennifer Zoller</td>
<td>Assistant Professor &amp; Extension Horse Specialist <em>(Academic Professional Track)</em></td>
<td>February 1, 2017</td>
</tr>
<tr>
<td>Last Name</td>
<td>Title</td>
<td>Departure Date</td>
</tr>
<tr>
<td>--------------</td>
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<td>---------------------------------</td>
</tr>
<tr>
<td>Marcel Amstalden</td>
<td>Assistant Professor, Physiology of Reproduction</td>
<td>Passed away September 3, 2017</td>
</tr>
<tr>
<td>Todd Bilby</td>
<td>Associate Professor &amp; Extension Dairy Specialist</td>
<td>February 1, 2013; accepted position in private industry</td>
</tr>
<tr>
<td>Josie Coverdale</td>
<td>Associate Professor, Equine Science</td>
<td>Passed away February 15, 2016</td>
</tr>
<tr>
<td>Jake Franke</td>
<td>Lecturer and Livestock Judging Team Coach</td>
<td>December 31, 2012; completion of doctorate</td>
</tr>
<tr>
<td>Glenn Holub</td>
<td>Instructional Assistant Professor, Animal Science</td>
<td>December 31, 2013; accepted position in private industry</td>
</tr>
<tr>
<td>Darrell Knabe</td>
<td>Professor, Animal Nutrition</td>
<td>Passed away December 25, 2012</td>
</tr>
<tr>
<td>James MacDonald</td>
<td>Associate Professor, Animal Nutrition</td>
<td>2013; accepted position at University of NE</td>
</tr>
<tr>
<td>Rick Machen</td>
<td>Professor and Extension Livestock Specialist</td>
<td>June 12, 2016; accepted position at TAMU – Kingsville</td>
</tr>
<tr>
<td>Anna Morrison</td>
<td>Instructional Assistant Professor, Equine Science</td>
<td>January 16, 2017; accepted position in private industry</td>
</tr>
<tr>
<td>Chad Paulk</td>
<td>Assistant Professor, Swine Nutrition</td>
<td>December 30, 2016; accepted position with Kansas State University</td>
</tr>
<tr>
<td>Brant Poe</td>
<td>Lecturer and Livestock Judging Team Coach</td>
<td>December 30, 2016; completion of doctorate</td>
</tr>
<tr>
<td>Dennis Sigler</td>
<td>Professor and Extension Horse Specialist</td>
<td>January 30, 2017; retirement</td>
</tr>
</tbody>
</table>