

# Curriculum Vitae

## Ciana Marie Bowhay

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### INTRODUCTION

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Classically trained animal nutritionist with a passion for animal science education. I ...

- Serve as instructor of graduate level, upper division, and introductory animal science and agriculture courses.
- Interact comfortably with faculty, students, and industry professionals.
- Successfully authored research grants and obtained funding for research.
- Designed, completed, and presented research in animal nutrition and scholarship of teaching and learning.

### PROFESSIONAL POSITIONS

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<b>Tennessee Technological University, Cookeville, Tennessee</b> Assistant Professor of Animal Science	<i>August 2021- present</i>
<b>Texas A&amp;M University, College Station, Texas</b> Graduate Research Assistant and Instructor of Record	<i>August 2018- May 2021</i>
<b>Kansas State University, Manhattan, Kansas</b> Graduate Research Assistant and Instructor of Record	<i>August 2015 – May 2017</i>

### EDUCATION

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<b>Texas A&amp;M University, College Station, Texas</b> Doctor of Philosophy in Animal Science Emphasis in Ruminant Nutrition, and Animal Science Education Dissertation: Traditional and non-traditional strategies to increase student engagement and motivation in Animal Science education	<i>December 2021</i>
<b>Kansas State University, Manhattan, Kansas</b> Master of Science, Comparative Animal Nutrition Thesis: Novel Probiotic Supplementation in Equine, Poultry and Swine Production <i>Patent awarded related to findings from these 3 research trials</i>	<i>August 2017</i>
<b>Texas A&amp;M University, College Station, Texas</b> Bachelor of Science, Animal Science Graduated <i>summa cum laude</i>	<i>May 2014</i>

### LICENSURES AND CERTIFICATIONS

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<b>CIRTL Practitioner Certification</b> Certified through the Center for the Integration of Research, Teaching, and Learning at Texas A&M University Office of Graduate and Professional Studies	<i>May 2020</i>
<b>Beef Quality Assurance</b> Certified in New Mexico and Texas	<i>May 2019</i>

## AWARDS AND HONORS

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Outstanding Agriculture Professor	May 2022
Outstanding Agriculture Advisor	May 2023
Outstanding Agriculture Researcher	May 2024

## PROFESSIONAL MEMBERSHIPS

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American Society of Animal Science	March 2018-Present
North American College Teachers of Agriculture	February 2021-Present
IDEATE Community Member	August 2020-January 2024
Member of the Innovation and Design for Exploration and Analysis in Teaching Excellence community as a part of the Texas A&M University Transformative Teaching Initiative.	
Collaborated with a community of scholars from multiple disciplines to conduct and disseminate Scholarship of Teaching and Learning (SoTL) research grounded in educational theory.	

## GRANTS AND FELLOWSHIPS

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### Grants Awarded

1. Co-PI - Seiler, S. (PI), Ramsey, E. (Co-PI), **Bowhay, C.** (Co-PI). Tennessee Opioid Abatement Council. Prevention of Controlled Substance Diversion in Veterinary Medicine. \$300,000 (Awarded March 2024).
2. PI - Development of an online curriculum for the Agribusiness Management degree. Tennessee Tech Faculty Academy for Course & Program Development. \$10,000
3. PI - Incorporation of Ration Development Software into Animal and Poultry Science Courses. Tennessee Tech Faculty Academy for Course & Program Development. \$10,000
4. PI - Promoting creative inquiry and critical thinking through developing undergraduate research skills and conducting undergraduate research. Tennessee Tech EDGE Course and Curriculum Grant. \$15,138.
5. PI - Enhancing student development by creating educational videos in Animal Reproduction Bowhay, C. Tennessee Tech EDGE Course and Curriculum Grant \$5,900.
6. Co-writer USDA-NIFA Agricultural and Food Research Initiative Grant # 2019-05964 Enhancing sustainability of beef production by elucidating subspecies' differences in urea recycling in response to supplementation. Project Director: T.A. Wickersham. \$500,000

### Grants Submitted

1. PI - Developing Science Identity in Agriculture Undergraduates through Research **Bowhay, C.**, Natrass, M. 1-yr funding for \$5,000. Tennessee Tech Faculty Research Grant, submitted February 2022.
2. Co-PI - The effects of hot water bath treatment on pure trypsin inhibitor Ayres, V., **Bowhay, C.** 1-yr funding for \$5,000. Tennessee Tech Faculty Research Grant, submitted February 2022.

### Fellowships

1. IDEATE Faculty Fellow May 2020  
Recipient of fellowship to promote scholarship of teaching and learning research within the discipline of animal science.

## PATENTS AND PUBLICATIONS

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1. **Bowhay, C.M. 2024.** Promoting media literacy in animal science. J. Anim. Sci. 102(Supp3). 417–418. doi:10.1093/jas/skae234.475.

2. **Bowhay, C.M.**, T. M. Taylor, J. P. Donaldson, K. A. Dunlap. **2023**. Fostering Science Identity, Motivation, and Engagement through a Student-Created Living Digital Reference in Food Microbiology. *Submitted to Cell Biology Education-Life Sciences Education May 2023. In review.*
3. **Bowhay, C.M.**, T.A. Wickersham, and K.A. Dunlap. **2022**. Visual Modeling as a Pedagogical Strategy in Nutritional Physiology Animal Science Course. *NACTA Journal*, 66.
4. **Bowhay, C.M.**, T.A. Wickersham, R. Richardson, and K.A. Dunlap. **2022**. Texas panhandle beef production tour, a high-impact compressed course in animal science. *Trans. Anim. Sci.* 6(2): doi:10.1093/tas/txac054.
5. **Bowhay, C.M.**, K.A. Dunlap, T.M. Taylor. **2021**. Developing a student-created living digital reference in food microbiology. *NACTA Journal*, Vol. 65, Supplement 1.
6. **C.M. Bowhay**, J.S. Drouillard and J.M. Lattimer, **2020**. Effects of *Megasphaera elsdenii* on growth performance and characteristics of cecal digesta in broiler chickens. *Int. J. Poult. Sci.* 19(7): 321-329.
7. **Bowhay, C.M.**, J.P. Donaldson, T.M. Taylor and K.A. Dunlap. 2021. Fostering Science Identity, Motivation, and Engagement through a Student-Created Living Digital Reference in Food Microbiology. *In preparation for submission to CBE-Life Sciences Education.*
8. **Bowhay, C.M.**, K.A. Dunlap, T.M. Taylor. 2021. Developing a student created living digital reference in food microbiology, implications for constructivist and constructionist learning theories. *In preparation.*
9. **Bowhay, C.M.**, T.A. Wickersham. 2020. Nitrogen metabolism response in steers consuming low-quality forage to intermittent protein supplementation at varying levels. *In preparation.*
10. M.O. Franco, N. Bell, J.R. Baber, **C.M. Bowhay**, T.A. Wickersham. 2020. Nutritional performance and metabolic characteristics of *Bos taurus* and *Bos indicus* fed with forages and supplemented with soybean meal. *In preparation.*
11. Weldon, K.K., J. McCann, **C.M. Bowhay**, J.E. Sawyer, T.A. Wickersham. 2020. Nitrogen metabolism in *Bos indicus* and *Bos taurus* cattle consuming low-quality forage. *In preparation.*
12. **Bowhay, C.M.**, J.S. Drouillard, T.L. Douthit and J.M. Lattimer. 2017. Effects of a novel probiotic on growth performance and fecal characteristics of swine. *In preparation.* Patent Issued.
13. **Bowhay, C.M.**, J.S. Drouillard, T.L. Douthit and J.M. Lattimer. 2017. Evaluation of the effects of a novel probiotic on fermentation within the equine cecum. *In preparation.* Patent Issued.
14. J.S. Drouillard, C.C. Aperce, G.R. Herren, T.J. Ellerman, **C.M. Scaletti**, K.V. Jordan, J.M. Lattimer, R.S. Beyer, S. Uwituze, T.L. Douthit and C.D. Gunkel. **2017**. *Megasphaera elsdenii* Cells, Methods of Producing the Same, and Uses Thereof. U.S. Patent application No. 62/510,723; 62/452,804; 62/452,816. Filed May 24, 2017. *Patents Awarded Nov. 22, 2022.*

## PRESENTATIONS FOR PROFESSIONAL MEETINGS

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1. **Bowhay, C. M.**, September 2024. Situating Students as Creators and Promoting Cross Course Collaboration. SoTL Summit. Kennesaw, GA. Oral Presentation.
  2. **Bowhay, C. M.**, July 2024. Media Literacy in Animal Science. American Society of Animal Science Annual Meeting and Trade Show. Calgary, Alberta, Canada. Oral Presentation.
  3. **Bowhay, C. M.**, Mahan, M.A. June 2023. Participating in production practices common to the industry increases motivation and confidence in early career agriculture students. North American Colleges and Teachers of Agriculture Annual Conference. Oral Presentation. *Presented by M. Mahan.*
  4. **Bowhay, C. M.**, T. A. Wickersham, K. A. Dunlap. June 2022. Visual modeling as a pedagogical strategy in a nutritional physiology animal science course. North American Colleges and Teachers of Agriculture Annual Conference. Oral Presentation.
  5. Reeves, M., **C.M. Bowhay**, M. Chowdhury, J.P. Donaldson. April 2022. Semantic network analysis in design-based research. American Educational Research Association Annual Meeting. Poster Presentation.

6. **Bowhay, C.M.,** K.A. Dunlap, T.M. Taylor. June 2021. Developing a student-created living digital reference in food microbiology. North American Colleges and Teachers of Agriculture Virtual Conference. Poster Presentation.
7. **Bowhay, C.M.,** K.A. Dunlap, T.M. Taylor. June 2021. Developing a living digital reference in food microbiology. Transformational Teaching and Learning Conference. Oral Presentation.
8. **Bowhay, C.M.** and T.A. Wickersham. 2021. July 14-18. Effect of infrequent nitrogen supplementation on forage utilization. American Society of Animal Science Annual Meeting and Trade Show. Louisville, KY. Poster Presentation.
9. **Bowhay, C.M.,** T.A. Wickersham, and K.A. Dunlap. 2021. July 14-18. High impact minimester course in animal science. American Society of Animal Science Annual Meeting and Trade Show. Louisville, KY. Poster Presentation.
10. Donaldson, J. P., **Bowhay, C.,** Dunlap, K., Joseph, M., and Chowdhury, M. 2021, June 7-11. Development of a faculty community of practice for scholarship of teaching and learning. International Society of the Learning Sciences Annual Meeting, Bochum, Germany. Oral Presentation.
11. A Technique for collecting ileal digesta through cecal cannulas in the equine. **Presenter.** research conducted by T.K. Dove, J.M. Lattimer, W.L. Beard, E.A. Taylor, T.L. Douthit. Pet food Innovation Workshop and Pet Food Experience at Kansas State, October 2015, Manhattan, KS. Poster Presentation.

### Student Presentations

1. Mahan, M., **Bowhay, C.,** & Duncan, D. June 2023. Controversial Case Study (GM) Positively Affected Critical Thinking Disposition. North American Colleges and Teachers of Agriculture Annual Conference. Las Cruces, NM. Oral Presentation.
2. Jones, M. Natrass, M., **Bowhay, C.** (2023). The Potential for Use of Wood Chips as Bioreactors to Reduce the Amount of Nitrogen from Agriculture Runoff. [Abstract] Research & Creative Inquiry Day, 13.
3. Beck, M., **Bowhay, C.,** Natrass, M. (2023). Effect of Mycorrhizal Fungi Inoculation of Soil on Phosphorus Uptake in Plants [Abstract] Research & Creative Inquiry Day, 13.
4. Johnson, M., **Bowhay, C.,** Natrass, M. (2023). Potential for Use of Wood Chips as a Low-cost Method to Reduce Environmental Impact of Agricultural Runoff. [Abstract] Research & Creative Inquiry Day, 13.
5. Mahan, M., **Bowhay, C.,** & Duncan, D. (2022). Industry Leaders' Perceived Critical Thinking Dispositions of Early-Career Employees [Abstract]. Research & Creative Inquiry Day, 6 8-9.
6. Mahan, M., **Bowhay, C.,** & Duncan, D. (2022). Knowledge, Perceptions, and Attitudes of AGRN 1110 Students on Genetically Modified Crops: A Survey [Abstract]. Research & Creative Inquiry Day, 6 9.

### RESEARCH ACTIVITY

#### Tennessee Technological University

Conducting research in Scholarship of Teaching and Learning and Pedagogy to enhance engagement, science identity, and self-efficacy among students in agriculture.

#### *Current Areas of Study*

- Developing Science Identity in Agriculture Undergraduates through Research
- Developing Media Literacy in an Upper Division Animal Science Course
- Developing confidence and motivation in early career animal science students through industry production practices
- Developing Self-Efficacy and Expertise; Moving from Abstract to Concrete in Animal Reproduction

- Assessing Critical Thinking Attributes in first year to senior level undergraduates, a longitudinal study

**Graduate Research Assistant under Dr. Kathrin Dunlap**

Texas A&amp;M University, College Station, TX

*August 2020-October 2021*

Designed and implemented 4 educational research trials assessing pedagogical strategies in STEM and animal science teaching.

- Developed framework for the creation of a constructionist digital reference as a class project and course resource in Food Bacteriology.
- Assessed impact of experiential learning through the Texas Panhandle Beef Production Tour minimester course on student perceptions of agriculture and careers in the agricultural industry.
- Evaluated efficacy of learning complex nutritional concepts through visual modeling in Principles of Animal Nutrition.
- Determined effect of societal impact questions on knowledge retention and correction of misconceptions in a non-major's animal science course.
- Assess impact of pedagogical strategies on student motivation, engagement, knowledge retention, and science identity.

**Graduate Research Assistant under Dr. Tryon Wickersham**

Texas A&amp;M University, College Station, TX

*August 2018-July 2020*

Headed research trial examining effects of intermittent protein supplementation on nitrogen balance in cannulated steers.

- Managed undergraduate research assistants and worked closely with other graduate students throughout the trial.
- Taught undergraduate students safe animal handling and laboratory techniques.

Assisted in research involving use of novel byproducts and feeding strategies and their effects on fermentation and digestibility parameters of cannulated steers.

**Graduate Research Assistant under Dr. James Lattimer**

Kansas State University, Manhattan, KS

*August 2015-August 2017*

Managed 3 concurrently operating FDA research trials investigating the effects of supplementation with a novel probiotic in equine, poultry, and swine nutrition.

- Investigated effect of novel probiotic supplementation on pH and volatile fatty acid concentrations in digesta of horses, pigs and broiler chickens using pH probes and gas chromatography.
- Measured effect of novel probiotic supplementation on growth and feed efficiency of swine and poultry.
- Collected samples of digesta, kept records for FDA audit, and analyzed data using Statistical Analysis Software.

Collaborated with fellow graduate students on *in vivo*, *in situ* and *in vitro* research trials.

- Assisted in care, handling, and feeding of swine, poultry, beef cattle and horses.
- Collected digesta via cecal or ruminal cannulae in horses and cattle.
- Assisted in chemical and microbiological laboratory analysis of bacterial culture, cecal, ruminal, blood, and silage samples.
- Prepared novel probiotic culture, assisted in development of novel method of preparation of anaerobic probiotic culture to extend half-life and improve efficacy.

**TEACHING EXPERIENCE**

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**Assistant Professor of Animal Science Tennessee Technological University***August 2021- present***AGR 3200: Study Abroad in Agriculture – Scotland (Fall 2024)**

Immersive undergraduate study abroad course offering a unique opportunity to explore Scotland's rich cultural heritage and agricultural landscape. We visited iconic Scottish historical sites to experience the culture while gaining firsthand knowledge of Scotland's diverse agricultural and livestock production industries. Through field visits and industry interactions, students examined agricultural practices and explored how they differ from those in the United States. Students are expected to develop a global perspective on agriculture and an appreciation for Scotland's historical and modern contributions to the field

- Co-led with another faculty member. Organized housing, flights, transportation, and food for 12 students and 2 faculty members in Glasgow, Edinburgh, and Dumfries, Scotland
- Organized visits to Scottish historical sites like Edinburgh castle and the Scottish National Museum, as well as Agricultural and Research sites related to animal science.
- Networked with Scottish researchers and academics to provide students with a complete cultural and educational experience.

**EVSA 6010: Environmental Science in Agriculture, 3 Credit Hours (Spring 2024)**

Graduate level course providing a summary of the actual and/or relative environmental impacts of existing and emerging agricultural practices and production technologies.

**ANS 4150: Equine Management, 3 Credit Hours (Spring 2023)**

Overview of the equine industry, breeds, selection, handling and grooming, foot care, diseases, nutrition, reproduction, facilities, and management techniques.

- Teach students biological principles behind decision making in equine management

**AGR 3275: Practical Applications in Research, 1 Credit Hour (Spring 2023)**

Opportunity to apply skills in critical thinking and research introduced in Introduction to Research to a real-world research project. Work collaboratively to conduct research to answer a scientific question. Collect and analyze data and interpret and evaluate results. Gain practical knowledge of the scientific process, and how your skills can be used to advance the agricultural industry.

- Advise undergraduate students as they conduct research studies of their own and assist in research studies of School of Agriculture professors.
- Mentor and support students as they develop abstracts and professional posters for Creative Inquiry Day at Tennessee Tech.

**ANS 3140: Livestock Reproduction, 3 Credit Hours (Fall 2022, 2024)**

Reproduction in farm animals; anatomy, physiology, and endocrine control of reproduction; and applied reproduction methods in livestock and dairy animals.

- Teach students principles, importance, and potential impact of reproduction in livestock, hormonal controls and human intervention.
- Prepare lectures, exams, quizzes and homework, grade course work.
- Mentor and provide guidance to students interested in careers in animal science, graduate school, and veterinary school.

**AGR 3250: Introduction to Research, 2 Credit Hours (Fall 2022)**

Introduce the scientific process and walk through the process of conducting research step-by-step. Upon completing this course, students will be able to find and evaluate helpful resources, read and understand scholarly articles, collect and interpret data, and use their knowledge to answer scientific questions of value to the agricultural industry.

- Provided students with background knowledge necessary to successfully and ethically conduct research in the future.
- Prepared lectures, discussions, homework, and projects, graded course work.
- Met with students to discuss their academic, career, and research goals, to strengthen their ability to perform research and disseminate results in a professional manner.

**AGR 1020: Connections to Agriculture, 1 Credit Hour (Fall 2022, Fall 2024-online)**

This course strengthens the student's connection to TTU by engaging the student in meaningful academic and non-academic activities both in and out of the classroom. It emphasizes critical thinking in the formation of academic and social goals, support groups, and self-management of study skills.

- Created an online option for Connections to serve distance students
- Taught new freshmen and provided guidance in navigating their college experience.
- Prepared lectures, discussions, homework, and projects, graded course work.
- Met with students to discuss their career and academic goals.

**AGR 3000: Leadership and Service, 3 Credit Hours (Summer 2022)**

Improve understanding of leadership as it pertains to students' lives. Exploration of leadership models, roles of leaders and followers, concepts of effective leadership, and ethical issues, with special focus on leadership as service in teams, organizations, communities, and society. Assist students in identifying and defining leadership on a personal and organizational level.

- Taught 5 students in an online synchronous/asynchronous course.
- Prepared lectures, discussions, homework, and projects, graded course work.
- Met with students to discuss their goals and leadership dispositions.

**ANS 3020: Animal Feeds and Feeding, 3 Credit Hours (Each Spring 2022-Present)**

Survey and provide a thorough understanding of the nutrients and their classifications, nutrient requirements, ration formulation for various classes of livestock and dairy, nutritional management of various animal species, conducting feeding trials.

- Teach students advanced concepts in animal nutritional management, nutrient classification, and ration formulation.
- Prepare lectures, exams, quizzes and homework, grade course work.
- Mentor and provide guidance to students interested in careers in animal science, graduate school, and veterinary school.

**ANS 1200: Introductory Animal Science, on campus and dual credit, 3 Credit Hours (Fall 2021-Present)**

Introduction to market classes, types, grades, and breeds of livestock and poultry; animal agricultural products; basic animal biological processes related to livestock production and management; and overview of careers related to animal agriculture.

- Teach new animal science students foundational concepts related to animal science and production.
- Prepare lectures, exams, homework, and grade course work.
- Mentor students as they explore career options in animal science or veterinary science.
- Created online dual credit course for local high school students to receive college credit while participating in a class as close to the in-person experience as possible.

**ANS 1210: Introductory Animal Science Laboratory, 1 Credit Hour (Fall 2021-Present)**

Provides the opportunity for application of the basic principles of animal science with an emphasis on different types of livestock enterprises; animal types, breeds, form, and function; and common practices employed in management of major livestock enterprises.

- Introduce new animal science students to safe handling of swine, cattle, poultry, sheep, and horses.

- Demonstrate and supervise safety protocols and low stress handling techniques of livestock.
- Provide hands-on experience in common industry practices in production of swine, sheep, cattle, horses, and dogs.
- Prepare lectures, exams, quizzes and grade course work.

#### **ANS 3010/3015: Animal Nutrition, 3 Credit Hours (Every Fall 2021-Present)**

Classes of nutrients, digestibility, metabolism, nutrient requirements of livestock, and feed analysis.

- Teach a class of approximately 16 students the principles, importance, and potential impact of animal nutrition and feeding.
- Prepare lectures, exams, quizzes and homework, grade course work.
- Mentor and provide guidance to students interested in careers in animal science, graduate school, and veterinary school.

**Instructor of Record, Texas A&M University**

*August 2018- May 2021*

#### **ANSC 320: Animal Nutrition and Feeding, 3 Credit Hours (Fall 2018-Spring 2021):**

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.

- Taught approximately 140 students from a variety of departments and majors the principles, importance, and potential impact of animal nutrition and feeding.
- Prepared lectures, exams, quizzes and homework, graded course work.
- Met with students to establish additional learning objectives and coursework to achieve University Honors credit.
- During the COVID-19 pandemic, transitioned the course to a synchronous/asynchronous online format including lectures, class activities, assignments, and exams.
- Mentored and provided guidance to students interested in careers in animal science, graduate school, and veterinary school.
- Added 2 dissection labs and a companion animal lecture to the course and organized guest lectures and educational field trips.
- Collaborated with another animal science faculty member to restructure ANSC 320 into an asynchronous online course for the Spring 2021 semester.
- Co-taught asynchronously with another animal science faculty member Spring 2021.

**Instructor of Record, Kansas State University**

*January 2016 – May 2017*

#### **ASI 107: Companion Animal and Horse Lab, 1 Credit Hour (Spring 2016 – Spring 2017):**

An introduction to the companion animal and equine industries. Career opportunities in the companion animal and equine industries. The use of companion animals in society, their value, and production systems. Basic biology, breed identification, health, handling, training, and selection.

- Taught approximately 180 students in 4 classes over 3 semesters, met with students, assessed needs, and found opportunities to increase awareness of the subject matter.
- Prepared weekly labs and lectures to focus insight upon general knowledge, care and handling of companion animals and equines.
- Prepared exams and quizzes, graded course work

**Teaching Assistant, Texas A&M University**

*August 2020 – May 2021*

#### **ANSC/NFSC 326: Food Bacteriology, 3 Credit Hours, (Fall 2020 - Spring 2021):**

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



- Monitored online portion of the course, answered questions.
- Met with honors' contract students to assess progress in honors project.
- Mentored honors students to ensure successful competition of their honors contract.
- Managed Digital Reference project.
- Collaborated with course instructor on all aspects of project development and implementation.

#### **ANSC 411: Equine Nutrition and Health, 3 Credit Hours (Spring 2021)**

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.

- Monitored online portion of the course, answered questions.
- Developed exams.

#### **ANSC 303: Principles of Animal Nutrition, 3 Credit Hours (Fall 2020)**

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.

- Monitored online portion of the course, answered questions.
- Prepared learning activities and exam questions.
- Graded exams, quizzes, and homework
- Met with students to increase understanding of metabolism and roles of nutrients in the body.

#### **Teaching Assistant Kansas State University**

*August 2015 – December 2015*

#### **ASI 320: Principles of Feeding, 3 Credit Hours (Fall 2015):**

Application of basic nutrition principles to the feeding of beef cattle, sheep, and swine; feedstuff evaluation; nutrient requirements; ration formulation and practical feeding problems.

- Assisted with preparing and teaching labs, prepared quizzes and homework assignments.
- Graded exams, quizzes, and homework.
- Met with students to increase understanding of formulation of livestock rations and to improve their academic performance.

### **TEACHING EVALUATIONS (2018-PRESENT)**

Course Number	Course Name	Semester	Students	Student Credit Hours	Overall Score /5
Texas A&M University					
ANSC 320	Animal Nutrition	Fall 2018	131	393	4.46
ANSC 320	Animal Nutrition	Spring 2019	82	246	4.65
ANSC 320	Animal Nutrition	Fall 2019	132	396	4.67
ANSC 320	Animal Nutrition	Spring 2020	65	195	4.77
Tennessee Tech University					
ANS 1200	Introductory Animal Science	Fall 2021	54	162	4.7
ANS 1210	Introductory Animal Science Lab	Fall 2021	49	49	4.6
ANS 3010	Animal Nutrition	Fall 2021	14	42	3.9
ANS 3020	Feeds and Feeding	Spring 2022	17	51	4.9

ANS 1200	Introductory Animal Science	Spring 2022	34	102	4.9
ANS 1210	Introductory Animal Science Lab	Spring 2022	42	42	4.9
AGR 3000	Leadership and Service	Summer 2022	5	15	N/A
ANS 1200	Introductory Animal Science	Summer 2022	2	6	N/A
AGR 1020	Connections in Agriculture	Fall 2022	22	22	4.3
ANS 3015	Animal Nutrition	Fall 2022	23	69	4.6
ANS 3140	Reproduction in Livestock	Fall 2022	16	48	4.9
AGR 3250	Introduction to Research	Fall 2022	10	20	4.7
ANS 1210	Introductory Animal Science Lab	Fall 2022	52	52	4.75
ANS 4150	Equine Management	Spring 2023	17	51	5
ANS 3020	Feeds and Feeding	Spring 2023	16	48	4.3
ANS 3275	Practical Applications in Research	Spring 2023	4	4	5
ANS 1210	Introductory Animal Science Lab	Spring 2023	17	17	4.8
ANS 1200	Introductory Animal Science	Spring 2023	56	168	4.7
ANS 1200	Introductory Animal Science	Fall 2023	58	174	4.7
ANS 3015	Animal Nutrition	Fall 2023	25	75	4.6
ANS 1200-600	Introductory Animal Science (Dual Credit)	Fall 2023	6	18	NA
ANS 3020	Feeds and Feeding	Spring 2024	15	45	4.8
ANS 1200	Introductory Animal Science	Spring 2024	49	147	4.8
ANS 1210	Introductory Animal Science Lab	Spring 2024	46	46	4.95
EVSA 6010	Environmental Science in Agriculture	Spring 2024	10	30	4.9

**GUEST LECTURES**

Course	Course Name	Topic	Date
Contributed information and edited new course material for restructuring of the ANSC 107 course			
ANSC 107	Introduction to Animal Science	Comparative Digestive Systems	Nov-18
ANSC 107	Introduction to Animal Science	Nutrition and Feedstuffs	Nov-18
ANSC 107	Introduction to Animal Science	Nutritional Requirements of Livestock	Nov-18
ANSC 303	Animal Nutrition	Macro-mineral Nutrition of Livestock	Nov-20
ANSC 303	Animal Nutrition	Trace Mineral Nutrition of Livestock	Nov-20

EVSA 3010	Environmental Science in Agriculture	Environmental Impact of Cattle Production (2 lectures)	Sep-22
ANS 1200	Introductory Animal Science	Beef Cattle Breeds, Production, Diseases (3 lectures)	Sep-22

## TEACHING INNOVATION AND CURRICULUM DEVELOPMENT

Recipient of two Faculty Academy for Course & Program Development grants

- Begin development of an online curriculum in AgriBusiness Management. Worked with a course designer to develop an online Connections to Agriculture course.
- Incorporation of an industry ration balancing technology into the Feeds and Feeding course to give students real-world experience with ration formulation software they may encounter in the industry

Recipient of two EDGE Course and Curriculum Grants for incorporating creative inquiry and critical thinking into courses in Agriculture

- Developed two courses in research (AGR 3250 and 3275) to introduce undergraduate students to foundational concepts in research and assist them in developing independent research projects, and presenting a poster at Creative Inquiry Day.
- Purchased a Bovine Breeding Simulator for the livestock reproduction course (ANS 3140) to allow students to practice palpation and AI techniques in a safe and controlled environment before introducing these techniques in live animals.

College Curriculum Committee Chair

- In charge of reviewing and revising all curriculum changes in the College of Agriculture and Human Ecology, and inputting into CourseDog all curriculum changes in the School of Agriculture.

## Course Redevelopment

Complete redevelopment of the following courses, including all lectures, lab activities, and assessments

1. ANS 1200-001: Introductory Animal Science
2. ANS 1200-600: Introductory Animal Science Dual Credit Course
3. ANS 1210: Introductory Animal Science Lab
4. AGR 1020: Connections to Agriculture
5. ANS 3015: Animal Nutrition
6. ANS 3020: Feeds and Feeding
7. ANS 3140: Reproduction in Livestock
8. ANS 4150: Equine Management
9. AGR 3200: Study Abroad to Scotland

## FACULTY DEVELOPMENT ACTIVITIES

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|---|------|
| 1. OLC Online Teaching Certification - Increasing interaction and engagement      | 2024 |
| 2. OLC Online Teaching Certification - ADA & Digital Accessibility                | 2024 |
| 3. CourseDog Training   | 2024 |
| 4. OLC Foundations in Online Teaching   | 2023 |
| 5. OLC Online Teaching Certification – Assessment Strategies that Engage Students | 2023 |
| 6. IE Report Training   | 2023 |
| 7. Women in Leadership  | 2023 |
| 8. iLearn Features you might not know exist                                       | 2023 |
| 9. Campus Pulse – Small Group Instructional Diagnostic, effective instruction     | 2023 |
| 10. Faculty Academy Online Learning PDs   | 2023 |

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| 11. CITL Summer Intensive  | 2023 |
| 12. Advising Community Exchange “Getting Students to Realize Where They Are” | 2022 |
| 13. CITL QEP Bootcamp  | 2022 |
| 14. Friday Focus, Dossier Prep   | 2022 |
| 15. CITL Summer Intensive  | 2022 |

## SERVICE AND ADVISING ACTIVITIES

### Academic Advising

*Spring 2022-Present*

Provide academic, course, and career advisement to between 45 and 76 assigned advisees each semester

### Club Advising

- |  |                          |
|--|--------------------------|
| 1. Delta Tau Alpha Honor Society - Advisor<br>Tennessee Tech University<br>Mentor and advise honor students in the school of agriculture<br>Organize and prepare to host DTA National Convention | <i>Fall 2021-Present</i> |
| 2. Pre-Vet Society - Advisor<br>Tennessee Tech University<br>Mentor and advise pre-veterinary students to help better prepare them for veterinary school   | <i>Fall 2021-Present</i> |
| 3. Sigma Alpha – Co-Advisor<br>Tennessee Tech University<br>Mentor and advise women in agriculture   |                          |

### Service to Tennessee Tech University

- |  |                                       |
|--|---------------------------------------|
| 1. 66th Annual Cumberland Plateau Regional Science and Engineering Fair Judge  | <i>April 2024</i>                     |
| 2. Upper Cumberland College Career Fair  | <i>Sept 2024</i>                      |
| 3. FFA Communications Clinic Judge   | <i>April 2024</i>                     |
| 4. Preview Day recruiting event  | <i>Oct 2022, 2023, 2024</i>           |
| 5. SOAR New Student Conference   | <i>Aug 2022, 2024</i>                 |
| 6. Meet with potential Pre-Vet students and their parents about the Pre-Vet and Animal Science programs at Tennessee Tech: | <i>Jan 2022 - Present</i>             |
| 7. Spring Showcase recruiting events:  | <i>Feb and March 2022, 2023, 2024</i> |
| 8. Take potential students and their parents on tours of Tech Farms  | <i>Jan 2022 – Present</i>             |
| 9. Assisted with Leadership Summit activities, hosted an informational:  | <i>June 2022, 2024</i>                |
| 10. College Curriculum Committee Chair:  | <i>Aug 2024-Present</i>               |
| 11. College Curriculum Committee member:   | <i>Jan 2022 – Aug 2024</i>            |
| 12. Search Committee for new Animal Science Professor-Chair, 3 separate searches   | <i>Sept 2022-Aug 2024</i>             |
| 13. Creative Inquiry Day Judge:  | <i>April 2023</i>                     |
| 14. Oakley STEM Center Event:  | <i>Oct 2023</i>                       |
| 15. Master of Science Committee  | <i>Feb 2022 – Jan 2023</i>            |
| 16. Ad-hoc Sign Design Committee   | <i>March 2022 – Dec 2022</i>          |
| 17. Social Planning Committee:   | <i>May 2022 - Present</i>             |
| 18. Hosted high school animal science students during the 4H Fall Showcase:  | <i>Oct 2022</i>                       |
| 19. Hosted field trips for local schools, high school, middle school, and kindergarten students:                           | <i>2022-2023</i>                      |
| 20. Graduate reception breakfast:  | <i>May 2022, 2023</i>                 |

### Service to the Profession

- |  |                          |
|--|--------------------------|
| 1. Coalition of Opioid Prevention and Abatement member and CE organizer  | <i>Jan 2024-Present</i>  |
| 2. NACTA Journal reviewer  | <i>Nov 2022- Present</i> |
| 3. Tennessee Specific Industry Certification (TSIC) - Revision Committee | <i>Dec 2021-Nov 2022</i> |

4. International Society of Learning Sciences – Program Committee

Nov 2021

**Center for Teaching Excellence-Graduate Teaching Consultant**

July 2019-December 2021

**Texas A&M University**

- Taught and assisted in preparation of the Teaching Assistant Institute workshop attended by all prospective graduate teaching assistants to provide training for effective teaching.
- Collaborated with 12 professionals from across campus to develop new virtual Teaching Assistant Institute curriculum for Fall 2020.
- Led professional development workshops for graduate teaching assistants to improve pedagogical, organizational, and classroom management skills.
- Assisted in training faculty from across the university in online course instruction during COVID-19 pandemic.
- Co-developed and led professional development in online teaching strategies for faculty and graduate students.
- Collaborated with English Language Proficiency Program to facilitate microteaching opportunities for international graduate teaching assistants to improve English language and teaching skills, and gain confidence in oral communication.
- Attended professional development workshops in topics ranging from classroom observation, developing a teaching philosophy, to copyright regulations.

**Instruction Assistant Parson's Mounted Cavalry**

August 2020-June 2021

- Assisted in instruction of cadets for safe horse handling and riding.
- Ensured safety of cadets and the public during Cavalry march-ins prior to football games.
- Acted as horse handler and side-walker to ensure safety of participants in equine assisted therapies with Courtney Cares therapeutic riding program.

Assisted in management of Kansas State University Horse Unit

May 2017- August 2017

- Responsible for minor veterinary care, day to day husbandry, and management of equine herd
- Maintenance of property and equipment

**TECHNICAL SKILLS**

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- Chemical analysis of feedstuffs, feces, ruminal and cecal digesta
  - Gas chromatography, spectrophotometry, acid detergent and neutral detergent fiber analysis, preparation of novel anaerobic microbial culture.
- Ankom RF gas production system *in vitro* analysis of microbial fermentation of feedstuffs.
- Knowledgeable and skilled in care, management and handling of cannulated equine herd and cannulated bovine herd.
- Experienced in safe handling of horses, pigs, poultry, and cattle.
- Assisted Dr. James Lattimer in development of equine feed formulation program using Microsoft Excel.
  - Program is now used as a resource in undergraduate equine feed formulation course.
- Proficient working in Microsoft Office, Articulate 360, Zoom, MAXQDA, UCINET, and Statistical Analysis Software (SAS).