

School of Agribusiness and Agriscience

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Stark Agribusiness and Agriscience Center 100

The School of Agribusiness and Agriscience offers the Master of Science (M.S.) in Horse Science, designed to prepare graduates for the multifaceted equine industry. Students may choose one of three concentrations: Equine Physiology, Industry Management, or Equine Education.

The Equine Physiology concentration emphasizes an interdisciplinary, science-based curriculum structured to build knowledge of scientific principles and apply them to a thesis research project related to equine science. In the Industry Management concentration, students structure their curriculum for a specific industry-related career. Students in the Equine Education concentration acquire a skill set needed to teach and provide instruction at a postsecondary equine program or leadership within the Cooperative Extension Service. Students in the Industry Management or Equine Education concentrations have the option to conduct and complete a traditional, research-based thesis project or to select a more contemporary nonthesis option.

The School of Agribusiness and Agriscience offers a minor at the graduate level.

Requirements for the Master of Science– Horse Science

The M.S. in Horse Science requires completion of a 15-credit-hour core and 21 credit hours in a concentration.

Admissions are based on a comprehensive assessment of a candidate's qualifications including Graduate Record Examination (GRE) scores or scores on the Miller Analogies Test (MAT), undergraduate and graduate grade point average, and letters of recommendation. Applicants must submit all application materials, to the College of Graduate Studies.

Candidate must

1. submit three letters of recommendation from professors or professionals that address the applicant's potential to successfully complete an M.S. program in Horse Science.

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- submit official scores on the Graduate Record Examination (GRE) or Miller Analogies Test (MAT). Successful applicants typically have GRE Verbal and Quantitative scores exceeding 400 each, with a total combined score that exceeds 800 or a score above 385 on the MAT.
- submit official transcripts of previous college work reflecting a 3.0 GPA from a minimum of 12 credit hours of upper-division, undergraduate animal science and/or equine science courses or equivalent industry experience as approved by the Horse Science Graduate Committee.
- participate in an interview with the Horse Science Graduate Committee at the applicant's expense before final acceptance into the program.

Applicants who do not meet admission requirements but whose overall record indicates the potential for success may be considered for conditional admission. Students admitted conditionally must meet all conditions established by the Horse Science Graduate Committee in order to remain in the program.

The application deadline is February 15 for those wishing to be considered for graduate assistantships and admission in the summer or fall. October 1 is the application deadline for admission in the spring. Applications will be accepted after these dates, but admission consideration is not guaranteed.

All students in the graduate program will be expected to complete a minimum of two consecutive semesters of full-time study in residence at MTSU.

Required Core Courses (15 hours)

STAT 5140 Probabilistic and Statistical Reasoning
ABAS 5420 Genetics of Domestic Livestock
Advanced Equine Nutrition*
Issues in Equine Industry*
Research Methods in Agricultural Science*
Graduate Seminar*

Equine Physiology

Required Courses (19 hours)

BIOL 5170 Endocrinology
CHEM 6500 Biochemistry I
STAT 6020 Introduction to Biostatistics
BIOL 6330 Principles of Physiology
Equine Reproductive Physiology*
Thesis Research*

Electives (2 hours)

In addition to the 19-hour concentration core, students must take a minimum of two (2) hours from 5000/6000-level courses in the following rubrics: ABAS, BIOL, CHEM, EXSC.

Equine Education

Required Courses (12 hours)

Coaching and Teaching for Equine Competitions*
Equine Experiential Learning* OR Thesis Research*
LSM 6500 Legal Issues and Risk Management in Sport and Leisure Services
Philosophy and Principles of Human Performance*

Electives (9 hours)

In consultation with their committees, students must select a minimum 9 hours from graduate-level courses within the College of Basic and Applied Sciences, the College of Behavioral and Health Sciences, and the Jones College of Business. Of these, a minimum of 6 hours must be taken from courses with similar content rubrics (i.e., MKT, MGMT, LSM, ABAS, etc.). Students are limited to 3 hours at the 5000 level.

Industry Management

Required Courses (12 hours)

Advanced Equine Event and Facility Management*
Equine Experiential Learning* OR Thesis Research*
MKT 6000 Marketing Concepts
MGMT 6000 Management and Operations Concepts
LSM 6510 Financial Management Marketing of Leisure and Sport Services
LSM 6520 Management Practices in Recreation and Leisure Services

**For current information about these courses, and other information about the Horse Science M.S. Degree, go to the program website at www.mtsu.edu/~horsesci.*

NOTE: Students must choose two of the four courses as part of the Industry Management core.

Electives (9 hours)

In consultation with their committees, students must select a minimum of 9 hours from graduate-level courses in the College of Basic and Applied Sciences, the College of Education, and the Jones College of Business. Of these, a minimum of 6 hours must be taken from courses with similar content rubrics (i.e., MKT, MGMT, LSM, ABAS, etc.). Students may take a maximum of 12 hours of electives selected from the MGMT, MKT, and or MC rubrics. Students are limited to 6 hours at the 5000 level

Courses in Agribusiness and Agriscience [ABAS]

5100 Microcomputer Applications in Agriculture. Three credits. Prerequisite: CSCI 1150 or INFS 2200. Includes use of agricultural software, agricultural communications network, computer daily feeding machines, and farm records.

5130 Agricultural Marketing and Price Analysis. Three credits. Prerequisite: ABAS 3130 or approval of instructor. Agricultural prices and their relationship to production and marketing. Agricultural marketing systems, functions, institutions, and structural changes.

5140 Economics of Agribusiness Management. Three credits. Prerequisite: ABAS 3130 or approval of instructor. The application of economic concepts to agribusiness firms.

5150 Agricultural Policy. Three credits. Prerequisite: ABAS 3130 or approval of instructor. Agricultural policy in a democratic society; relationship of farm groups to public policy; types of agricultural programs and appraisal of their results.

5200 Fruit and Vegetable Marketing. Three credits. Prerequisites: PSCI 1030/1031 and BIOL 1030/1031 or approval of instructor. Basic biochemistry of respiration, handling techniques and practices, quality assessment, and marketing of fruit and vegetable crops. Both domestic and international marketing of fruit and vegetable products discussed. Examines economic impact of improper handling on both the local producer and the end user.

5210 Farm Power and Equipment. Three credits. Gasoline engines with actual work experience in overhaul. Work also with transmissions, hydraulics, braking systems, and other farm equipment including use of shop manuals, operation manuals, and parts books.

5220 Methods of Teaching Agriscience and Agricultural Mechanics. Three credits. Emphasis on performing shop skills such as welding, brazing, electrical wiring, etc.

5230 Adult Education in Vocational-Education and Program Development. Three credits. How to teach adults and administer

adult programs. Emphasis on planning, organizing, and arranging courses for adults in agriculture.

- 5260 Behavior of Domestic Animals.** Three credits. Behavior aspects of raising and managing domestic animals to include equine, swine, goats, cattle, sheep, dogs, and cats. Communicative, ingestive, sexual, social, aggressive, and abnormal behaviors emphasized.
- 5310 Forage Crops.** Three credits. Adaptation, distribution, establishment, management, cultivation, and utilization of forage legumes and grasses.
- 5330 Turf Management.** Three credits. Prerequisite: ABAS 1610 or BIOL 1120/1121. Establishment and management of turf grasses for lawns, golf courses, and parks.
- 5340 Soil Formation and Remediation.** Three credits. Prerequisite: ABAS 3340. Environmental factors affecting soil formation and utilization.
- 5350 Soil Survey and Land Use.** Three credits. Prerequisite: ABAS 3340 or approval of instructor. Soil properties used to determine suitability for land use. Lecture/lab.
- 5400 Horsemanship—Equitation.** Three credits. Prerequisite: ABAS 2400 or approval of instructor. Proper horseback riding, handling, mounting, and dismounting. Various gaits and proper equitation stressed. One lecture and two two-hour laboratory periods.
- 5410 Animal Nutrition and Feeding.** Three credits. Gastrointestinal tract, process of digestion, and nutrient utilization. Application of principles of animal nutrition to formulation of supplements and complete rations for livestock.
- 5420 Genetics of Domestic Livestock.** Three credits. Basic principles of genetics, inbreeding, quantitative traits in livestock, prediction of breeding value and genetic progress, method of selection, mating systems, methods of genetic evaluation, computer software for animal breeding and genetics, and genetic engineering.
- 5430 Horse Production.** Three credits. Prerequisite: ABAS 2400, 3400, and one of the following: ABAS 3300, 4090, or 4440 or consent of instructor. Scientific principles relevant to production requirements of horses as related to exercise physiology and performance, growth, reproductive physiology and state, age, and clinical support. Facilities management, marketing, legal aspects of horse ownership and career opportunities covered.
- 5460 Care and Training of Horses.** Three credits. Prerequisites: ABAS 2400, 3400, and 4400 or approval of instructor. Theory, fundamentals, and practices of breaking, training, fitting, showing, and the use of light horses for riding and driving, with special emphasis on the Tennessee Walking Horse and the needs of the local area.
- 5470 Advanced Beef Production.** Three credits. Prerequisite: ABAS 3470 or approval of instructor. In-depth look at various systems of beef production from standpoint of function, economics, and suitability to locale. Extensive field trips to commercial cow-calf, feedlot, performance testing, stocker, and purebred operations.
- 5510 Domestic Animal Reproductive Physiology.** Three credits. Advanced topics in the anatomy, physiology, and endocrinology of reproduction in domestic livestock species. Topics include male and female physiology and an overview of comparative anatomy and physiology between species. Current technologies and methods in controlling reproduction in livestock species also discussed.
- 5620 Greenhouse Management.** Three credits. Prerequisite: ABAS 1610 or BIOL 1120/1121. Analysis of soils, fertilizers, irrigation techniques, container preparation, ventilation, growth regulation, and carbon dioxide enrichment for greenhouse operation. Two hours lecture and one two-hour lab.
- 5630 Floriculture.** Three credits. Prerequisite: ABAS 1610 or BIOL 1120/1121. Propagation and other cultural practices for the production and maintenance of plants and flowers in the home. Two hours lecture and one two-hour lab.
- 5640 Landscaping.** Three credits. Application of the principles of design, the use of proportionate-sized woody landscape plants, and other practices to produce low-maintenance-cost landscapes. One hour lecture and one four-hour lab.
- 5670 Plant Propagation.** Three credits. Prerequisite: ABAS 1610 or BIOL 1120/1121. Anatomical features and physiological principles involved in propagating plants from seed and by division, cutting, budding, and grafting. Use of growth regulators and environmental factors. Two hours lecture and one two-hour lab.
- 5700 Agriculture in Our Lives.** Three credits. The national and international importance of U.S. agriculture. Emphasis on food production and marketing, land conservation, and agriculture related recreation. Accepted as a natural science elective for education majors. NO CREDIT GIVEN TOWARD A MAJOR IN THE SCHOOL OF AGRIBUSINESS AND AGRISCIENCE.
- 5830 Food Quality Control.** Three credits. Prerequisites: PSCI 1030/1031 and BIOL 1030/1031 or approval of instructor. Quality control and sensory evaluation techniques utilized in food processing. Instrumental and physical methods of quality determination of raw and processed food products, hazard analysis and critical control point (HACCP), and quality philosophies employed in the industry. Sensory evaluation techniques and statistical analysis of evaluation results covered.
- 5910 Problems in Agriculture.** One to six credits. Problem or problems selected from one of the major disciplines. May involve conferences with instructor, library work, field study and/or laboratory activity. Students can take from one to three credits with a maximum of three per semester.
- 5980 Seminar in Horse Science.** One credit. Familiarizes horse science majors with important current scientific investigation in horse science.
- 5990 Seminar.** One credit. Students required to research and make an oral report on a current agricultural topic.
- 6450- Problems in Agriscience Technologies.** Three credits each. Prerequisite: Teaching experience or approval of instructor. Provides agricultural education teachers with intensive training in advanced technologies. A MAXIMUM OF SIX CREDIT HOURS IN EACH DIVISION.
- 6451 Animal Science**
- 6452 Plant Science**
- 6453 Agricultural Mechanics**
- 6454 Agribusiness**
- 6455 Forestry and Agricultural Products**