

PROGRAM CONCENTRATION: Agricultural Education
CAREER PATHWAY: Animal Science
COURSE TITLE: Agricultural Animal Production and Management

Course Description: The goal of this course is to provide all students instruction in establishing and managing agricultural animal enterprises; includes instruction in selecting, breeding, feeding, caring for, and marketing beef and dairy cattle, horses, swine, sheep, and poultry. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities.

AG-APM-1. Students will explain the importance of the livestock industry to the United States.

- a. Research the history of the domestication of farm animals.
- b. Explain the function of livestock.
- c. Describe the size of the livestock industry in the United States.
- d. Determine the distribution of livestock species within the state of Georgia.

Academic Standards:

ELA10RC4 (a) The student explores life experiences related to subject area content.

ELA10RC4 (c) The student determines strategies for finding content and contextual meaning for unfamiliar words or concepts.

SCSh6 The student communicates scientific investigations and information clearly.

SCSh7 The student analyzes how scientific knowledge is developed.

AG-APM-2. Students will demonstrate an understanding of career opportunities in livestock production and management.

- a. Explain the value of an agricultural background for the individual entering a livestock-related occupation.
- b. List employment opportunities which require knowledge of animal science.

Academic Standards:

SCSh9 The student enhances reading in all curriculum areas.

ELA10RC4 (a) The student explores life experiences related to subject area content. (b) The student discusses in both writing and speaking how certain words and concepts relate to multiple subjects.

AG-APM-3. Students will demonstrate an understanding of livestock and the environment.

- a. Describe livestock production problems relating to the environment.
- b. Describe methods of handling livestock wastes which reduce environmental pollution within the guidelines of current laws and regulations.
- c. Determine the proper way to dispose of dead animals from livestock production operations.
- d. Determine livestock owner liability under animal trespass laws.

Academic Standards:

SB4 The student assesses the dependence of all organisms on one another and the flow of energy and matter within their ecosystems.

SCSh3 The student identifies and investigates problems scientifically.

SCSh6 The student communicates scientific investigations and information clearly.

AG-APM-4. Students will demonstrate an understanding of ethics in livestock and how livestock production affects the environment.

- a. Describe the role of livestock in conjunction with food supply and food-animal regulations.
- b. Examine the role of livestock production and show animals with relation to animal welfare.
- c. Explain the importance of public perception in terms of the correlation between consumer concerns for food safety and producer marketing concerns.

Academic Standards:

ELA10LSV1 (c) The student responds to questions with appropriate information. (d) The student actively solicits another person's comments or opinion.

ELA10LSV1 (i) The student employs group decision-making techniques such as brainstorming or a problem-solving sequence (e.g., recognizes problem, defines problem, identifies possible solutions, selects optimal solution, implements solution, and evaluates solution).

ELA10LSV1 (e) The student offers own opinion forcefully without domineering. (f) The student contributes voluntarily and responds directly when solicited by teacher or discussion leader. (g) The student gives reasons in support of opinions expressed.

SCSh6 The student communicates scientific investigations and information clearly.

SB4 The student assesses the dependence of all organisms on one another and the flow of energy and matter within their ecosystems.

AG-APM-5. Students will demonstrate an understanding of livestock and bio-security.

- a. Describe the importance of bio-security in terms of livestock production and food supply.
- b. Examine bio-security methods and practices.

Academic Standards:

ELA10LSV1 (i) The student employs group decision-making techniques such as brainstorming or a problem-solving sequence (e.g., recognizes problem, defines problem, identifies possible solutions, selects optimal solution, implements solution, evaluates solution).

SCSh6 The student communicates scientific investigations and information clearly.

AG-APM-6. Students will demonstrate an understanding of livestock and bioterrorism.

- a. Define bioterrorism in the livestock industry.
- b. Examine bioterrorism threats and livestock producers' concerns.
- c. Develop an awareness of the Homeland Security Advisory System.

Academic Standards:

ELA10LSV1 (c) The student responds to questions with appropriate information. (d) The student actively solicits another person's comments or opinion.

SCSh6 The student communicates scientific investigations and information clearly.

AG-APM-7. Students will classify farm animals as ruminants and non-ruminants and their feeding requirements.

- a. Identify farm animals as ruminant or non-ruminant and describe the functions of the parts of the digestive systems of ruminant and non-ruminant animals.
- b. Identify the major function and characteristics of the basic nutrient groups and the sources of each.
- c. Discuss the general use and purpose of feed additives and implants.
- d. Classify feeds as roughages or concentrates and balance livestock rations.
- e. Explain the characteristics and six functions of a balanced ration.
- f. Describe the importance of water to animals.

Academic Standards:

SB1 (c) The student identifies the function of the four major macromolecules (i.e., carbohydrates, proteins, lipids, nucleic acids).

SB3 The student derives the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.

SES6 (a) The student relates the nature and distribution of life on Earth, including humans, to the chemistry and availability of water.

SAP4 The student analyzes the physical, chemical and biological properties of process systems as these relate to transportation, absorption and excretion, including the cardiovascular, respiratory, digestive, excretory and immune systems.

AG-APM-8. Students will review breeds of beef cattle and determine required feeding and management practices.

- a. Review the various breeds of beef cattle of commercial importance, giving their origin and breed characteristics.
- b. Determine the function of beef animals and the production systems in which they are produced.
- c. Interpret beef cattle performance records in selecting breeding animals.
- d. Name the parts of the beef animal and identify the procedure for evaluating beef animal conformation.
- e. Review common roughages and concentrates used in cattle rations.
- f. Demonstrate an understanding of common management practices such as castration, dehorning, vaccination, and identification of animals.
- g. Explain the effects, advantages, and disadvantages of using various breeding systems.
- h. Explain total herd health and its use in the beef herd related to prevention and treatment of parasites, diseases, and nutritional disorders.
- i. Describe the facilities and equipment required for beef operations.
- j. Describe the various methods of marketing beef cattle.
- k. Explain farmer liability under animal trespass laws.
- l. Explain the process, benefits, and limitations of artificial insemination as compared to natural mating.

Academic Standards:

SCSh3 The student identifies and investigates problems scientifically.

SB2 The student analyzes how biological traits are passed on to successive generations.

SSEMI2 The student explains how the Law of Demand, the Law of Supply, prices, and profits work to determine production and distribution in a market economy.

AG-APM-9. Students will review breeds of swine and determine required feeding and management practices.

- a. Review the various breeds of swine, giving their origin and breed characteristics.
- b. Determine the function of swine and the production systems in which they are produced.
- c. Interpret swine performance records in selecting breeding animals.
- d. Name parts of the live hog and wholesale cuts of the carcass.
- e. Identify the procedure for evaluating and selecting swine.

- f. Review common roughages and concentrations used in swine rations.
- g. Demonstrate an understanding of common management practices such as castration, vaccination, and identification of animals.
- h. Explain the effects, advantages, and disadvantages of using various breeding systems.
- i. Explain total herd health and its use in the swine herd related to prevention and treatment in parasites, disease, and nutrition disorders.
- j. Describe the facilities and equipment required for swine operations.
- k. Describe the various methods of marketing swine.
- l. Explain the benefits and limitations of artificial insemination as compared to natural mating.

Academic Standards:

SCSh4 The student uses tools and instruments for observing, measuring, and manipulating scientific equipment and materials.

SB2 The student analyzes how biological traits are passed on to successive generations.

SSEMI2 The student explains how the Law of Demand, the Law of Supply, prices, and profits work to determine production and distribution in a market economy.

AG-APM-10. Students will review breeds of sheep and goats and determine required feeding and management practices.

- a. Review the various breeds of sheep and goats, giving their origin and breed characteristics.
- b. Determine the function of sheep and goats and the production systems in which they are produced.
- c. Interpret sheep and goat performance records in selecting breeding animals.
- d. Name parts of the sheep and goats, identifying the procedure for evaluating and selecting sheep and goats.
- e. Review common roughages and concentrations used in sheep and goat rations.
- f. Demonstrate an understanding of common management practices such as castration, dehorning, vaccination, and identification of animals.
- g. Explain total flock/herd health and its use in the sheep or goat herd related to prevention and treatment in parasites, disease, and nutrition disorders.
- h. Describe the various methods of marketing sheep and goats.
- i. Describe the facilities and equipment required for sheep and goat operations.
- j. Explain the benefits and limitations of artificial insemination as compared to natural mating.

Academic Standards:

SCSh3 The student identifies and investigates problems scientifically.

SB2 The student analyzes how biological traits are passed on to successive generations

AG-APM-11. Students will review breeds of horses and determine required feeding and management practices.

- a. Review the various breeds of horses, giving their breed characteristics.
- b. Discuss the functions of horses and their production.
- c. Explain the benefits and limitations of artificial insemination as compared to natural breeding systems.
- d. Name parts of the horse and identify the procedure for evaluating and selecting horses.
- e. Review common roughages and concentrations used in horse rations.
- f. Demonstrate an understanding of common management practices for horses such as castration, vaccination, identification, breeding practices, and hoof care.
- g. Describe the facilities and equipment required for horse operations.
- h. Explain the effects, advantages, and disadvantages of using various breeding systems.
- i. Explain total herd health and its use in the horse herd related to prevention and treatment in parasites, disease, and nutrition disorders.
- j. Describe the various methods of marketing horses.

Academic Standards:

SCSh3. The student identifies and investigates problems scientifically.

SSEF3 The student explains how specialization and voluntary exchange between buyers and sellers increase the satisfaction of both parties.

AG-APM-12. Students will demonstrate an understanding of the poultry industry and identify the equipment required for this industry.

- a. Review the development of the poultry industry.
- b. Explain the selection of poultry for production.
- c. Identify and grade parts of the poultry carcass.
- d. Describe the feeding practices and nutritional needs for poultry.
- e. Demonstrate an understanding of common management practices of poultry.
- f. List housing and equipment used in the poultry industry.
- g. Explain the prevention and treatment of parasites, diseases, and nutritional disorders in poultry.
- h. Describe the parts of an egg and demonstrate proper technique when candling and grading eggs.
- i. Identify and describe the specific cuts of the poultry carcass.

Academic Standards:

SAP1(a)(b) The student analyzes anatomical structures in relationship to their physiological functions.

SSEF4 (b) The student compares and contrasts different economic systems and explain how they answer the three basic economic questions of what to produce, how to produce, and for whom to produce.

AG-APM-13. Students will identify the dairy cattle breeds and their importance in the dairy industry.

- a. Discuss breeds of dairy cows and their characteristics.
- b. Identify uses of dairy products.
- c. Recognize and understand differences in milk classifying and grading.
- d. Describe linear evaluation traits and improvements through genetics.
- e. Identify beneficial characteristics in evaluation and selection.
- f. Explain the effect of artificial insemination and embryo transfer on dairy production.
- i. Discuss proper feeding principles and appropriate feeds and forages for dairy animals in order to maintain production.

Academic Standards:

SCSh4 The student uses tools and instruments for observing, measuring, and manipulating scientific equipment and materials.

SCSh6 The student communicates scientific investigations and information clearly.

AG-APM-14. Students will become oriented to the comprehensive program of agricultural education, learn to work safely in the agriculture lab and work sites, demonstrate selected competencies in leadership through the FFA and agricultural industry organizations, and develop plans for a supervised agricultural experience program.

- a. Explain the role of the Agriculture Education program and the FFA in personal development.
- b. Demonstrate knowledge learned through a Supervised Agricultural Experience Program (SAEP).
- c. Develop leadership and personal development skills through participation in the FFA.
- d. Explore career opportunities in animal science through the FFA and Agriculture Education Program.
- e. Explore the professional agricultural organizations associated with the course content.

Academic Standards:

ELA10C1 The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

SCSh2. The student uses standard safety practices for all classroom laboratory and field investigations.

ELA10LSV1 (d) The student actively solicits another person's comments or opinion. (e) Offers own opinion forcefully without domineering.

ELA10LSV1 (i) The student employs group decision-making techniques such as brainstorming or a problem-solving sequence (e.g., recognizes problem, defines problem, identifies possible solutions, selects optimal solution, implements solution, evaluates solution).

ELA10LSV1 (e) The student offers own opinion forcefully without domineering. (f) The student contributes voluntarily and responds directly when solicited by teacher or discussion leader. (g) The student gives reasons in support of opinions expressed.

Reading Across the Curriculum

Reading Standard Comment

After the elementary years, students engage in reading for learning. This process sweeps across all disciplinary domains, extending even to the area of personal learning. Students encounter a variety of informational as well as fictional texts, and they experience text in all genres and modes of discourse. In the study of various disciplines of learning (language arts, mathematics, science, social studies), students must learn through reading the communities of discourse of each of those disciplines. Each subject has its own specific vocabulary, and for students to excel in all subjects, they must learn the specific vocabulary of those subject areas in *context*.

Beginning with the middle grades years, students begin to self-select reading materials based on personal interests established through classroom learning. Students become curious about science, mathematics, history, and literature as they form contexts for those subjects related to their personal and classroom experiences. As students explore academic areas through reading, they develop favorite subjects and become confident in their verbal discourse about those subjects.

Reading across curriculum content develops both academic and personal interests in students. As students read, they develop both content and contextual vocabulary. They also build good habits for reading, researching, and learning. The Reading Across the Curriculum standard focuses on the academic and personal skills students acquire as they read in all areas of learning.

CTAE-RC-1 Students will enhance reading in all curriculum areas by: Reading in All Curriculum Areas

-Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas.

- Read both informational and fictional texts in a variety of genres and modes of discourse.
- Read technical texts related to various subject areas.

Discussing Books

- Discuss messages and themes from books in all subject areas.
- Respond to a variety of texts in multiple modes of discourse.
- Relate messages and themes from one subject area to messages and themes in another area.
- Evaluate the merit of texts in every subject discipline.
- Examine author's purpose in writing.
- Recognize the features of disciplinary texts.

Building Vocabulary Knowledge

- Demonstrate an understanding of contextual vocabulary in various subjects.
- Use content vocabulary in writing and speaking.
- Explore understanding of new words found in subject area texts.

Establishing Context

- Explore life experiences related to subject area content.
- Discuss in both writing and speaking how certain words are subject area related.
- Determine strategies for finding content and contextual meaning for unknown words.

CTAE Foundation Skills

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

CTAE-FS-1 Technical Skills: Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

CTAE-FS-2 Academic Foundations: Learners achieve state academic standards at or above grade level.

Implementation date
Fall 2009

CTAE-FS-3 Communications: Learners use various communication skills in expressing and interpreting information.

CTAE-FS-4 Problem Solving and Critical Thinking: Learners define and solve problems, and use problem-solving and improvement methods and tools.

CTAE-FS-5 Information Technology Applications: Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

CTAE-FS-6 Systems: Learners understand a variety of organizational structures and functions.

CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

CTAE-FS-8 Leadership and Teamwork: Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

CTAE-FS-9 Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

CTAE-FS-10 Career Development: Learners plan and manage academic-career plans and employment relations.

CTAE-FS-11 Entrepreneurship: Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.