

Ag syllabus

Principles of Agriculture, Food, and Natural Resources

The student demonstrates professional standards/employability skills as required by business and industry

The student develops a supervised agriculture experience program.

The student analyzes concepts related to global diversity.

The student explains the historical, current, and future significance of the agriculture, food, and natural resources industry.

The student analyzes the structure of agriculture, food, and natural resources leadership in organizations.

The student demonstrates appropriate personal and communication skills.

The student applies appropriate research methods to agriculture, food, and natural resources topics.

The student applies problem-solving, mathematical, and organizational skills in order to maintain financial and logistical records.

The student develops technical knowledge and skills related to soil systems.

The student develops technical knowledge and skills related to plant systems.

The student develops technical knowledge and skills related to animal systems.

The student describes the principles of food products and processing systems.

The student safely performs basic power, structural, and technical system skills in agricultural applications.

The student explains the relationship between agriculture, food, and natural resources and the environment.

Wildlife, Fisheries, and Ecology Management

The student demonstrates professional standards/employability skills as required by business and industry.

The student develops a supervised agriculture experience program.

The student analyzes the importance of wildlife, with an emphasis on use and management.

The student knows the scientific basis of and applies concepts related to wildlife management.

The student knows the interrelationship between various aspects of wildlife and outdoor public use management.

The student examines natural cycles and ecological concepts.

The student applies cartographic skills to natural resource activities.

The student evaluates planning data by monitoring natural resource status.

The student analyzes various natural resource enhancement techniques using scientific knowledge.

The student demonstrates concepts related to optimum production.

Agricultural Mechanics and Metal Technologies

The student demonstrates professional standards/employability skills as required by business and industry.

The student develops a supervised agriculture experience program.

The student follows operating instructions for tools and equipment to perform a given task.

The student identifies and performs electric wiring skills.

The student performs plumbing skills.

The student performs concrete construction skills.

The student performs carpentry skills.

The student identifies fencing methods.

The student performs appropriate cold and hot metal techniques.

The student applies processes relating to assembly of equipment in agricultural systems operations.

The student plans and performs cost-effective construction techniques.

Agricultural Structures Design and Fabrication

The student develops a supervised agriculture experience program.

The student demonstrates principles of facilities design and fabrication related to agricultural structures.

The student explores the different types of power systems used in agricultural structures.

The student constructs agricultural structures using appropriate technology.

The student demonstrates metal construction techniques related to agricultural design and fabrication of structures.

Agricultural Equipment Design and Fabrication

The student demonstrates professional standards/employability skills as required by business and industry.

The student develops a supervised agriculture experience program.

The student demonstrates principles of design and fabrication related to agricultural machinery and equipment.

The student plans, constructs, and maintains fences, corrals, and other agricultural enclosures.

The student demonstrates construction techniques related to design and fabrication of agricultural equipment.

The student demonstrates knowledge of laws and regulations related to the construction, design and fabrication of agricultural equipment.

Equine Science

In Equine Science, students will acquire knowledge and skills related to equine animal systems and the equine industry. Equine Science may address topics related to horses, donkeys, and mules.

To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.

To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: identify career development and entrepreneurship opportunities in the field of equine

science; demonstrate competencies related to resources, information, interpersonal skills, and systems of operation in equine science; demonstrate knowledge of personal and occupational health and safety practices in the workplace; identify employers' expectations, including appropriate work habits, ethical conduct, and legal responsibilities; demonstrate characteristics of good citizenship such as stewardship, advocacy, and community leadership; and research career topics using technology such as the Internet.

The student develops a supervised agriculture experience program. The student is expected to: plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity; apply proper record-keeping skills as they relate to the supervised agriculture experience; participate in youth leadership opportunities to create a well-rounded experience program; and produce and participate in a local program of activities using a strategic planning process.

The student analyzes equine science as it relates to the selection of horses. The student is expected to: recognize the importance of equine industries such as racing, rodeos, equestrian therapy, and the global food market; and evaluate and select horses based on purpose.

The student knows how to provide proper nutrition using accepted protocols and processes to maintain animal performance. The student is expected to: determine nutritional requirements of horses; describe the anatomy and physiology of horses, including the skeletal,

muscular, respiratory, reproductive, and circulatory systems; and explain methods of maintaining horse health and soundness.

The student analyzes equine science as it relates to the management of horses. The student is expected to: select equipment and facilities for horses; demonstrate methods of handling horses safely; and identify the procedures for breeding horses per industry standards.

The student identifies animal pests and diseases. The student is expected to: identify and describe the role of bacteria, fungi, viruses, genetics, and nutrition in disease; identify methods of disease control, treatment, and prevention; classify internal and external parasites, including treatment and prevention; and identify behavioral diseases such as cribbing, heaving, and wind sucking.

The student compares and contrasts issues affecting the equine industry. The student is expected to: describe biotechnology issues related to the equine industry; and identify animal welfare policy pertaining to equine industries such as racing, rodeos, equestrian therapy, the global food market, and pharmaceutical research.

Small Animal Management

In Small Animal Management, students will acquire knowledge and skills related to small animals and the small animal management industry. Small Animal Management may address topics related to small mammals such as dogs and cats, amphibians, reptiles, and birds. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings.

Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

The student demonstrates professional standards/employability skills as required by business and industry.

The student is expected to: identify career development and entrepreneurship opportunities in the field of specialty agricultural enterprises; apply competencies related to resources, information, interpersonal skills, and systems of operation in specialty agricultural enterprises; demonstrate knowledge of personal and mechanical safety and health practices in the

workplace; identify employers' expectations, including appropriate work habits, ethical conduct, and legal responsibilities; demonstrate characteristics of good citizenship such as stewardship, advocacy, and community leadership; and research career topics using technology such as the Internet.

The student develops a supervised agriculture experience program. The student is expected to: plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity; apply proper record-keeping skills as they relate to the supervised agriculture experience; participate in youth leadership opportunities to create a well-rounded experience program; and produce and participate in a local program of activities using a strategic planning process.

The student describes the importance of responsible small animal ownership. The student is expected to: explain the domestication and use of small animals; identify the influence small animals have on society; describe the importance of the small animal industry; describe the obligations and benefits of small animal ownership; and discuss the use and services provided by small animals.

The student learns the hazards associated with working in the small animal industry. The student is expected to: explain the importance of safe practices when working with small animals; identify zoonotic diseases that can be transmitted from small animals to humans; describe methods of preventing the spread of disease; follow safety guidelines when handling dangerous chemicals and working with small animals; and demonstrate the proper use of laboratory equipment.

The student evaluates current topics in animal rights and animal welfare. The student is expected to: compare and contrast animal rights and animal welfare; research important persons, organizations, and groups involved in the animal rights movement; create a timeline of dates and acts of legislation related to animal welfare; and analyze current issues in animal rights and animal welfare.

The student knows the care and management requirements for a variety of small animals. The student is expected to: discuss the physical characteristics for each species studied; list the breeds or types of each species studied as appropriate; discuss the habitat, housing, and equipment needs for each species studied; compare and contrast nutritional requirements for each species studied; explain health maintenance in each species studied, including the prevention and control of diseases and parasites; describe and practice common methods of handling each species studied; and perform procedures such as fecal and blood testing and basic grooming procedures using available laboratory equipment.

The student examines career opportunities in small animal care. The student is expected to: identify, describe, and compare career opportunities in small animal care and management; and describe the nature of the work, salaries, and educational requirements for careers in small animal care.

Livestock Production

In Livestock Production, students will acquire knowledge and skills related to livestock and the livestock production industry. Livestock Production may address topics related to beef cattle, dairy cattle, swine, sheep, goats, and poultry. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: identify career development and entrepreneurship opportunities in the field of animal

systems; apply competencies related to resources, information, interpersonal skills, and systems of operation in animal systems; demonstrate knowledge of personal and occupational safety and health practices in the workplace; identify employers' expectations, including appropriate work habits, ethical conduct, and legal responsibilities; demonstrate characteristics of good citizenship such as stewardship, advocacy, and community leadership; and research career topics using technology such as the Internet.

The student develops a supervised agriculture experience program. The student is expected to: plan, propose, conduct, document, and evaluate a supervised agriculture experience program as an experiential learning activity; apply proper record-keeping skills as they relate to the supervised agriculture experience; participate in youth leadership opportunities to create a well-rounded experience program; and produce and participate in a local program of activities using a strategic planning process.

The student demonstrates technical skills relating to the interrelated human, scientific, and technological dimensions of animal systems. The student is expected to: assess the importance of the United States' impact on world commodity markets; apply the principles of livestock breeding and nutrition to predict the impact of current advances in genetics; and examine the interrelationship of plants and animals in concepts such as forage identification, rotational grazing, and grass protein levels.

The student performs technical skills related to livestock production. The student is expected to gather performance data; describe common veterinary procedures and skills; practice proper animal restraint techniques; demonstrate identification techniques; and demonstrate effective management strategies such as financial planning and managing governmental regulations.

The student explains anatomy and physiology related to nutrition, reproduction, health, and management of livestock species. The student is expected to: explain the skeletal, muscular, respiratory, reproductive, and circulatory systems of animals; and evaluate vital signs and normal behavior.

The student determines nutritional requirements of ruminant and non-ruminant animals, including poultry. The student is expected to: describe the digestive systems of ruminant and non-ruminant animals; identify sources of nutrients and classes of feed; identify vitamins, minerals, and feed additives; formulate rations; and discuss feeding practices and feed quality issues.

The student explains animal genetics and reproduction. The student is expected to: describe the reproductive systems of various livestock; explain the use of genetics in animal agriculture such as Expected Progeny Differences (EPDs), phenotype, and genotype; identify systems of animal breeding; research current and emerging technologies in animal reproduction such as cloning, embryo transfer, in vitro fertilization, and artificial insemination; and design and conduct experiments to support known principles of genetics.

The student identifies animal pests and diseases. The student is expected to: identify and describe the role of bacteria, fungi, viruses, genetics, and nutrition in disease; identify methods of disease control, treatment, and prevention; and classify internal and external parasites, including treatment and prevention.

The student knows the factors impacting commodity prices and costs. The student is expected to: evaluate the relationship between livestock commodity markets; and formulate rations based on least-cost factors.

The student plans for dynamic changes in business operation. The student is expected to: design, conduct, and complete research to identify and solve livestock management problems; and use charts, tables, or graphs to prepare written summaries of data such as nutrition, digestion, and reproduction data obtained in a laboratory activity and an individual scientific research project.