

## **Agriculture, Food & Natural Resources Cluster** **(Agriscience Magnet Program - Madison HS)**

### Course: **ADVANCE ANIMAL SCIENCE**

Course Description: Students acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements and industry standards. This course examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences. Student must pass safety test with 100% mastery.

NEISD #**8269**

Credit: 1.0

Term: Full Year

Grade Placement: 12

Prerequisites:

**Special Notes:**

---

### Course: **ADVANCED ENVIRONMENTAL TECHNOLOGY**

Course Description: Students acquire advanced technical knowledge and skills related to environmental service systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course examines the interrelatedness of environmental issues and production agriculture. Students evaluate sustainable resources and green technologies which will provide environmental benefits. Instruction is designed to allow for the application of science and technology to measure environmental impacts resulting from production agriculture through field and laboratory experiences. Student must pass safety test with 100% mastery.

NEISD #**8286**

Credit: 1.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

### Course: **ADVANCED PLANT AND SOIL SCIENCE**

Course Description: Students explore how plant and soil science has influenced a vast body of knowledge, that there are still applications to be discovered, and that plant and soil science is the basis for many other fields of science. Investigations, laboratory practices and field exercises will be used to develop an understanding of current plant and soil science. This course is designed to prepare students for careers in the food and fiber industry. Students will learn, reinforce, apply and transfer their knowledge in a scientific setting. Student must pass safety test with 100% mastery.

NEISD#**8277**

Credit: 1.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

### Course: **AGRIBUSINESS MANAGEMENT AND MARKETING**

Course Description: Students acquire technical knowledge and skills related to agribusiness marketing and management and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course is designed to provide a foundation to agribusiness management and the free enterprise system. Instruction includes the use of economic principles such as supply and demand, budgeting, record keeping, finance, risk management, business law, marketing and careers in agribusiness.

NEISD #**8280**

Credit: 1.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

Course:**AGRICULTURAL FACILITIES DESIGN AND FABRICATION**

Students attain knowledge and skills related to agricultural facilities design and fabrication. Students explore career opportunities, entry requirements and industry expectations. To prepare for careers in mechanized agriculture and technical systems, students reinforce, apply and transfer their academic knowledge and technical skills in a variety of settings.

Course Description: Student must pass safety test with 100% mastery.

NEISD #8282

Credit: 2.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:***NCCER Construction certification.*

---

Course: **AGRICULTURE MECHANICS AND METAL TECHNOLOGIES**

Course Description: Students attain academic skills and knowledge; acquire technical knowledge and skills related to power, structural and technical agricultural systems and the industry; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications and industry expectations. This course is designed to develop an understanding of agricultural mechanics as it relates to safety and skills in tool operation, electrical wiring, plumbing, carpentry, fencing, concrete and metal working techniques. Student must pass safety test with 100% mastery.

NEISD #8283

Credit: 1.0

Term: Full Year

Grade Placement: 10-12

Prerequisites:

**Special Notes:***NCCER Welding I Certification.*

---

Course: **AGRICULTURE POWER SYSTEMS**

Course Description: Students acquire technical knowledge and skills related to power, structural and technical agricultural systems and the workplace; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications and industry expectations. This course is designed to develop an understanding of power and control systems as related to energy sources, small and large power systems and agricultural machinery. Student must pass safety test with 100% mastery.

NEISD #8284

Credit: 2.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:***Small engine certification. OSHA Certification exam may be offered.*

---

Course: **ENERGY AND NATURAL RESOURCES TECHNOLOGY**

Students acquire technical knowledge and skills related to energy and natural resources and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course is designed to explore the interdependency of the public and natural resource systems related to energy production. In addition, renewable, sustainable and environmentally friendly practices will be explored.

Course Description: Student must pass safety test with 100% mastery.

NEISD #8285

Credit: 1.0

Term: Full Year

Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course: **EQUINE SCIENCE**

Course Description: Students acquire knowledge and skills related to animal systems and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. Suggested animals which may be included in the course of study include, but are not limited to, horses, donkeys and mules.

NEISD #8266

Credit: 0.5

Term: Semester

Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course:**FOOD PROCESSING**

Course Description: Students acquire technical knowledge and skills related to natural resources and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course focuses on the food processing industry with special emphasis on the handling, processing and marketing of food products. Student must pass safety test with 100% mastery.

NEISD # **8268**      Credit: 2.0      Term: Full Year      Grade Placement: 11-12

Prerequisites:

**Special Notes:***Food Safe Certification exam may be offered.*

---

Course: **FOOD TECHNOLOGY AND SAFETY**

Course Description: Students acquire technical knowledge and skills related to value-added and food processing and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course examines the food technology industry as it relates to food production, handling and safety. Student must pass safety test with 100% mastery.

NEISD #**8262**      Credit: 1.0      Term: Full Year      Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course:**HORTICULTURAL SCIENCE**

Course Description: Students attain academic skills and knowledge, acquire technical knowledge and skills related to horticulture and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course is designed to develop an understanding of common horticultural management practices as they relate to food and ornamental plant production. Student must pass safety test with 100% mastery.

NEISD #**8275**      Credit: 1.0      Term: Full Year      Grade Placement: 10-12

Prerequisites:

**Special Notes:***Texas Master Gardner certification exam may be offered*

---

Course: **LANDSCAPE DESIGN AND TURFGRASS MANAGEMENT**

Students attain academic skills and knowledge, acquire technical knowledge and skills related to horticultural systems and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course is designed to develop an understanding of landscape and turf grass management techniques

Course Description: and practices. Student must pass safety test with 100% mastery.

NEISD #      **8276**      Credit: 1.0      Term: Full Year      Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

Course:**LIVESTOCK PRODUCTION**

Course Description: Students will acquire knowledge and skills related to animal systems and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. Animal species to be addressed in this course may include, but are not limited to, beef cattle, dairy cattle, swine, sheep, goats and poultry. Student must pass safety test with 100% mastery.

NEISD #**8265**      Credit: 1.0      Term: Full Year      Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course:**MATHEMATICAL APPLICATIONS IN AGRICULTURE, FOOD AND NATURAL RESOURCES**

Students acquire technical knowledge in the discipline as well as apply academic skills in mathematics. Students should apply knowledge and skills related to mathematics, including

Course Description: algebra, geometry and data analysis in the context of agriculture, food and natural resources.

NEISD #**8281**      Credit: 1.0      Term: Full Year      Grade Placement: 12

Prerequisites:

**Special Notes:**

---

Course: **PRACTICUM IN AGRICULTURE, FOOD AND NATURAL RESOURCES**

The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Agriculture, Food and Natural Resources cluster. The practicum is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships or laboratories. Student must pass safety test

Course Description:with100% mastery.

NEISD #**8287**

Credit: 2.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

Course:**PRACTICUM IN AGRICULTURE, FOOD AND NATURAL RESOURCES II**

Course Description:The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Agriculture, Food and Natural Resources cluster. The practicum is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships or laboratories.

NEISD #**8387**

Credit: 2.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

Course:**PRINCIPLES AND ELEMENTS OF FLORAL DESIGN**

Course Description:Students attain academic skills and knowledge as well as technical knowledge and skills related to horticultural systems and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course is designed to develop students' ability to identify and demonstrate the principles and techniques related to floral design as well as develop an understanding of the management of floral enterprises. Student must pass safety test with 100% mastery.

NEISD #**8278**

Credit: 1.0

Term: Full Year

Grade Placement: 10-12

Prerequisites:

**Special Notes:***This course may be substituted for the Fine Arts credit requirement.  
Texas Master Florist certification exam may be offered.*

---

Course:**PRINCIPLES OF AGRICULTURE, FOOD AND NATURAL RESOURCES**

Course Description:This course allows students to develop knowledge and skills regarding career opportunities, personal development, globalization, industry standards, details, practices and expectations. To prepare for success, students need to have opportunities to learn, reinforce, experience, apply and transfer their knowledge and skills in a variety of settings. Student must pass safety test with 100% mastery.

NEISD #**8261**

Credit: 1.0

Term: Full Year

Grade Placement: 9-10

Prerequisites:

**Special Notes:**

Course:**PROFESSIONAL STANDARDS IN AGRIBUSINESS**

Students acquire technical knowledge and skills related to leadership development and the workplace and develop knowledge and skills regarding agricultural career opportunities, entry requirements and industry expectations. This course primarily focuses on leadership,

Course Description:communication, employer-employee relations and problem solving as they relate to agribusiness.

NEISD #**8279**

Credit: 0.5

Term: Semester

Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course:**SMALL ANIMAL MANAGEMENT**

Students acquire knowledge and skills related to animal systems and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. Suggested small animals which may be included in the course of study include, but are not limited to, small mammals, amphibians, reptiles, avian, dogs and cats. Student must pass

Course Description:safety test with 100% mastery.

NEISD #**8264**

Credit: 1.0

Term: Full Year

Grade Placement: 10-12

Prerequisites:

**Special Notes:**

---

Course:**VETERINARY MEDICAL APPLICATIONS**

Students acquire technical knowledge and skills related to animal systems and the workplace and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. Topics covered in this course include, but are not limited to, veterinary practices as they relate to both large and small animal species. Student must pass safety test

Course Description: with 100% mastery.

NEISD #**8267**

Credit: 1.0

Term: Full Year

Grade Placement: 11-12

Prerequisites:

**Special Notes:**

---

Course:**WILDLIFE, FISHERIES AND ECOLOGY MANAGEMENT**

Students acquire technical knowledge and skills related to natural resources and develop knowledge and skills regarding career opportunities, entry requirements and industry expectations. This course examines the management of game and non-game wildlife species, fish and aquacrops and their ecological needs as related to current agricultural

Course Description: practices. Student must pass safety test with 100% mastery.

NEISD # **8263**

Credit: 1.0

Term: Full Year

Grade Placement: 10-12

Prerequisites:

**Special Notes:** *Texas Hunter Education Certification and/or Texas Boater Education Certification exam may be offered.*