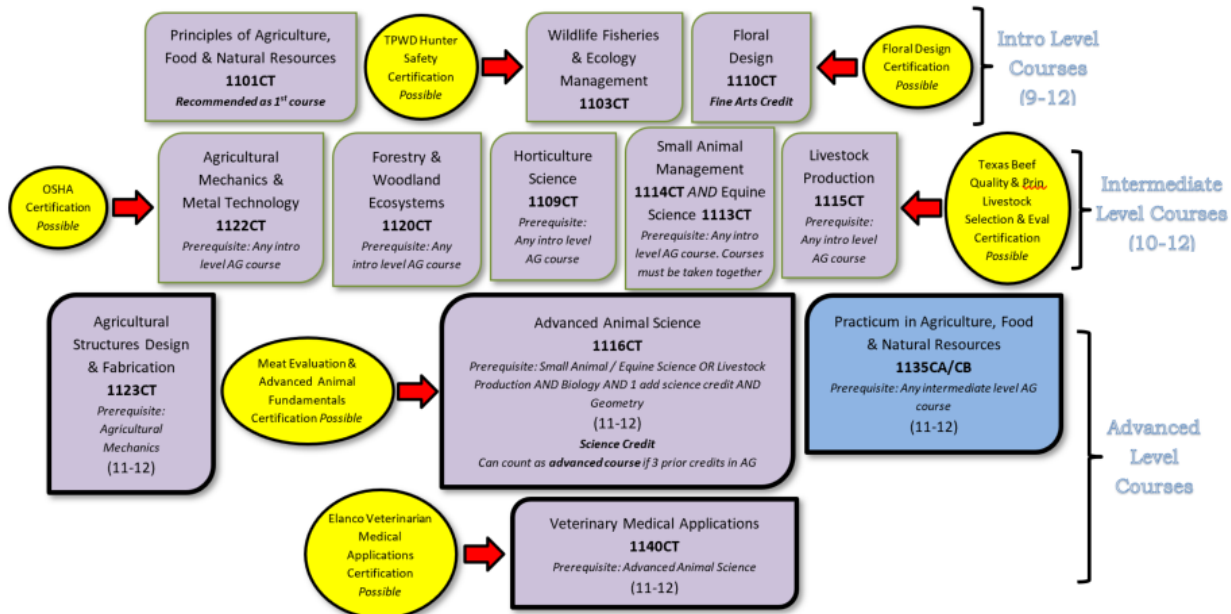


AGRICULTURE, FOOD & NATURAL RESOURCES

Endorsement: Business & Industry



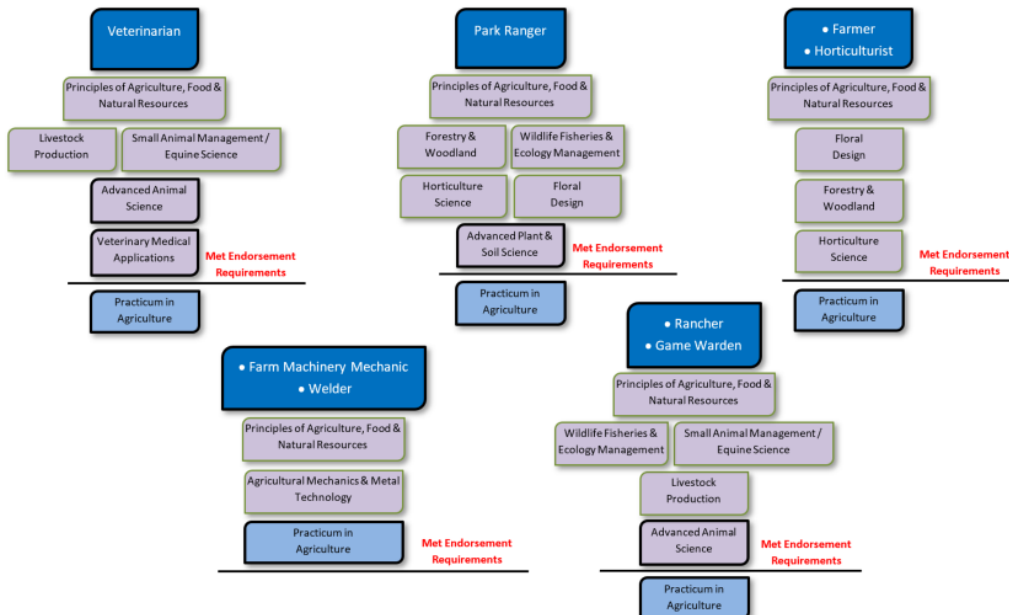
Certification Requirement
The district will pay 100% of the cost of the certification test if students can show mastery by:
Passing a certification practice test
Maintaining an 80+ overall course average at the time of the certification test
If students don't meet the requirements above, they must pay 100% of the cost of the certification test

LEGEND					
Fill Color	Length	Credit	Fill Color	Length	Credit
	18 weeks	1	HC - 18 weeks	0.5	
	36 weeks	2-3	HC - 36 weeks	1	
	College Course		Advanced Course		

To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

Agriculture, Food & Natural Resources

Recommended Career Pathways



To earn an endorsement, an MISD student must complete a coherent sequence for 4 or more credits that consist of 2 courses in the same program of study including at least 1 advanced CTE course

Principles of Agriculture, Food & Natural Resources



Prerequisite: None

Course: 1101CT

Credits: 1

Length: 18 weeks

Placement: 9-12

Course Description

This class will give students an opportunity to explore the various areas of agriculture as they discover how agriculture impacts their lives on a daily basis. The foundation for truly understanding all that agriculture encompasses is laid in this class and additionally students are introduced to important life skills including record keeping, leadership and meeting room procedures. Students must keep an online record of their skills and knowledge about agriculture through an agricultural experience or SAE that acts as an extension of the class to extend student learning.

Student Activities

Students will explore the world of agriculture. Students will learn about different agricultural careers that are related but not limited to farming. They will practice different FFA contests such as Career Developmental Events (CDE) like egg grading and dairy evaluation as well as Leadership Developmental Events (LDE). Students will learn about the evaluation of animals and will take trips to the Ron Whitson Agricultural Science Center to work hands on with animals. They will receive a tour of the greenhouse and can have a hand at keeping it up and growing their own food. This class gives students a taste of everything so that they can find their niche in the agricultural field.

Students in Principles of Agriculture, Food and Natural Resources will have an opportunity to be a part of the largest student-led organization in the nation, The Future Farmers of America. Through the FFA, students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

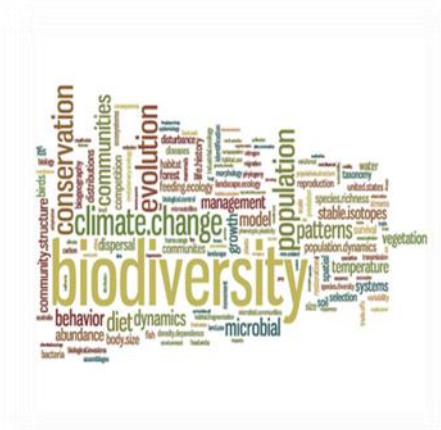
Competitions

State Livestock Shows, Leadership Development, Competitions in Chapter Conducting, Ag Issues, Job Interviews, etc., Career Development Events in Ag Products, etc.

Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon. Students handle animals & plants.

Wildlife, Fisheries & Ecology Management



Prerequisite: None

Course: 1103CT

Credits: 1

Length: 18 weeks

Placement: 9-12

Course Description

Students enrolled in this course will be exposed to careers related to Wildlife, Fisheries and Ecology. The course will focus on game and non-game species and the environmental factors needed to sustain natural resources.

Student Activities

Activities for this course include plant and animal species identification at the Rendon property, fishing techniques, bow and arrow shooting, ecological reclamation, compass reading, and building aquatic species traps. Professionals employed in and individuals associated with a course-related career will be utilized to enhance this class.

Students in Wildlife will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Organizations

Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events in Wildlife, etc.



Additional Considerations

AG classes travel to Ron Whitson AG Center during class.
Students handle animals in class.

Certifications

TPWD Hunter Safety Certification Possible
Student Cost: \$15

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Floral Design



Prerequisite: None

Course: 111OCT

Credits: 1

Length: 18 weeks

Placement: 9-12

Course Description

Floral Design is a fun, hands-on course where students create beautiful, artistic designs using silk and fresh flowers. Students will learn the elements and principles of design and the basics of business involved in running a flower shop and other floral-related industries.

Students will receive a fine arts credit for taking this class.

Student Activities

Activities for students enrolled in this course will include hands-on floral designing using silk and fresh flowers in multiple arrangements, history of floral design, elements and principles of design, plant anatomy, wedding planning and business management strategies of the floral industry.

Organizations

Competitions

Leadership Development, Competitions, Career Development Events in Floral Design, etc.



Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon. Students handle plants and use sharp objects.

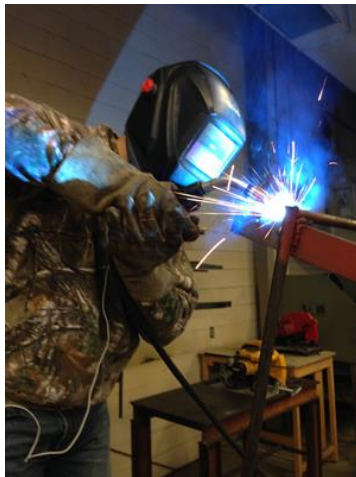
Certifications

Floral Design Certification Possible

Student Cost: \$30

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Agricultural Mechanics & Metal Technologies



Prerequisite: Any intro level AG course

Course: 1122CT

Credits: 1

Length: 18 weeks

Placement: 10-12

Course Description

Students enrolled in this course will be exposed to careers in agricultural power, structural and technical systems. 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 metalworking techniques.

Student Activities

Activities for this course include hand and power tool operations, electrical wiring, plumbing, carpentry and metalworking techniques. Students will be able to construct numerous projects as they relate to the activities.

Competitions

Students will have the opportunity to join and compete in Career Development Events through the National FFA Organization. Students will be able to construct and exhibit their projects in the Ag Mechanics Contest and compete for scholarships and industry products and equipment.

LDE, CDE, and State Welding Competitions as well as Ag Mechanics Competitions.

Certifications

OSHA Certification Possible

Student Cost: \$25

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

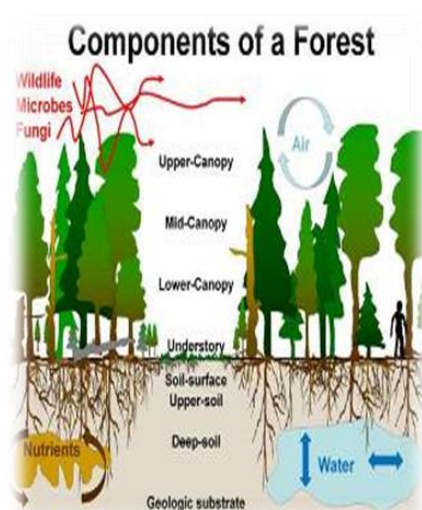
Organizations



Additional Considerations

Students need fine motor skills and mobility. Students handle sharp objects and use dangerous equipment.

Forestry & Woodland Ecosystems



Prerequisite: Any intro level AG course

Course: 112OCT

Credits: 1

Length: 18 weeks

Placement: 10-12

Course Description

This course examines current management practices for forestry and woodlands. Special emphasis is given to management as it relates to ecological requirements and how these practices impact the environment. It includes exploration of careers associated with the forestry system, tree identification, calculating tree harvest and a study of the forest ecosystem.

Student Activities

Students will be exposed to reading a compass, calculating area in tracks of land, tree identification and soil treatments. Students will travel to the Ag-Science department property at Rendon and identify various native woody plants and take soil samples on the property. Students are encouraged to participate in the Woodlands, Wildlife, Forages and Land career development events through the National FFA Organization.

Competitions

State Livestock Shows, Leadership Development, Competitions, Career Development Events in Forestry, etc.

Additional Considerations

Students travel to Ron Whitson AG Center in Rendon regularly. Students handle animals & plants.

Organizations



Horticulture Science



Prerequisite: Any intro level AG course

Course: 1109CT

Credits: 1

Length: 18 weeks

Placement: 10-12

Course Description

To be prepared for careers in horticultural systems, students need to 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 Activities

Students will be immersed in the world of plants with lots of hands-on time in the Greenhouse and Tree Farm. Students will learn how the vegetables, fruits and flowers they use on a daily basis are grown. Students will be working in the greenhouse and participate in a plant sale.

Students in Horticulture Science will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Competitions

State Livestock Shows, Leadership Development Competitions, Career Development Events in Plant ID, Greenhouse, Tree Farm, Entomology, Nursery Landscape CDE, Cotton Judging CDE, Agronomy CDE

Organizations



Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon. Students handle plants and soil in class.

Small Animal Management

Equine Science



Prerequisite: Any intro level AG course

Course: 1114CT/1113CT **Credits:** 1 **Length:** 18 weeks **Placement:** 10-12

Course Description

Small Animal Management is a course that educates and encourages students about management of pets and livestock and career opportunities in the small animal field. This course prepares students for potential careers related to small animal care, including but not limited to: veterinarians, vet techs, animal caretakers, pet breeders and owners, groomers, boarders, etc. This course is designed to be hands-on and includes people/animal interactions. Students will learn about careers related to the field and receive practical training in tasks applicable to any pet owner.

Equine Science is an entry level animal science course that covers topics related to the equine industry. Topics include: anatomy, reproduction, careers, nutrition, grooming, selection, tack and trailer safety.

Small Animal Management and Equine Science must be taken together.

Student Activities

Small Animal covers animal rights and animal welfare, animal uses in society, disease and parasitology, small animal breeds, nutrition, grooming, housing, care, human-animal bond, and much more. There are multiple lab activities, many of which include interactions with live animals. In Equine Science, students will learn and apply safe procedures as they relate to basic grooming, hoof care, saddling and elementary veterinary care.

Students enrolled in these courses will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events in Horse Judging, etc.

Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon.
Students handle animals & plants.

Organizations



Livestock Production



Prerequisite: Any intro level AG course

Course: 1115CT

Credits: 1

Length: 18 weeks

Placement: 10-12

Course Description

Students will learn about livestock management and animal physiology. This course was developed to teach knowledge and skills related to animal systems and the workplace, career opportunities, entry requirements and industry expectations. Animal species in this course are: beef cattle, dairy cattle, swine, sheep, goats and poultry.

Student Activities

This course will build on the skills learned in Principles of Agriculture. Students will be examining livestock production from the standpoint of the producer and identifying proper management of livestock.

Students in Livestock Production will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Organizations

Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events in Livestock Judging, Wood Judging, etc.



Certifications

Texas Beef Quality
Student Cost: \$0

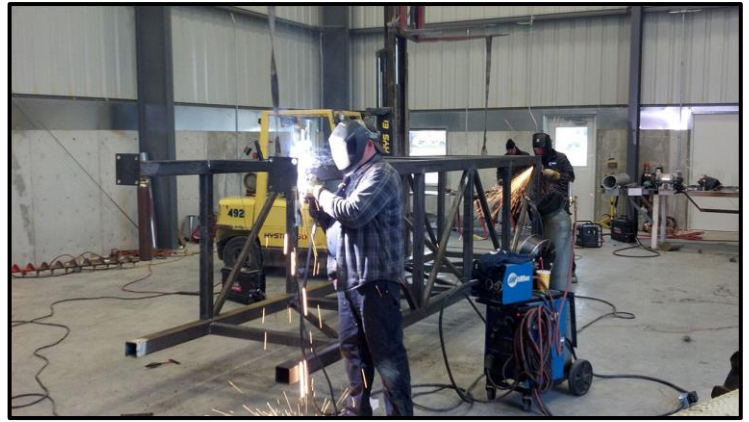
Principles of Livestock Selection Certification Possible
Student Cost: \$35

Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon.
Students handle animals & plants.

Certification paid for by CTE if student has an
80+ GPA in course and passes a practice test

Agricultural Structures Design & Fabrication



Prerequisite: Agricultural Mechanics & Metal Technologies

Course: 1123CT

Credits: 1

Length: 18 weeks

Placement: 11-12

Course Description

In Agricultural Structures Design and Fabrication, students will explore career opportunities, entry requirements, and industry expectations. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural structures design and fabrication.

Student Activities

Ag Structures covers information and skills in employability skills, facilities design and fabrication, power systems, agricultural structures, metal construction, and the SAE.

Additional Considerations

Competitions

State Livestock Shows, Leadership Development, Competitions, Career Development

AG classes travel to Ron Whitson AG Center in Rendon. Students handle animals & plants.

Advanced Animal Science



Prerequisite: Biology AND 1 additional Science AND Geometry AND Livestock OR Equine Science/Small Animal Management

Course: 1116CT

Credits: 1

Length: 18 weeks

Placement: 11-12

Course Description

To be prepared for careers in the field of animal science, students need to attain academic skills and knowledge, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements and industry standards. To prepare for success, students need opportunities to learn, reinforce, apply and transfer their knowledge and skills in a variety of settings. 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.

Students can earn science credit for this course.

Student Activities

This course will build on the skills learned in Animal Science. Students will learn disease management in domesticated animals including treatments such as vaccinations and medications. Emphasis in this course is placed on the inter-relatedness of human, scientific, and technological dimensions of livestock production. Students interested in Veterinary Technician, Veterinarian Medicine or Agriculture Science Education as a career should take this class.

Students in Advanced Animal Science will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Organizations



Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events in Veterinary Science, etc.

Certifications

Advanced Animal Fundamentals
Certification Possible
Student Cost: \$35

Additional Considerations

AG classes travel to Ron Whitson AG Center in Rendon.
Students handle animals during class.

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Practicum in Agriculture, Food & Natural Resources



Prerequisite: Any intermediate level AG course

Course: 1135CA/1135CB **Credits:** 2 **Length:** 36 weeks **Placement:** 11-12

Course Description

This course is a continuation of the agriculture career pathway of the student, and a job or internship position is required. The curriculum provides instruction to assist students in practicing communication skills, utilizing listening skills to follow directions, practicing basic mathematics skills as applied to agricultural settings, reading to gain information and performing assignments and tasks as directed.

Student Activities

This course will build on the skills learned in all agricultural science classes. Students will be extend their knowledge and begin to gain experience in the industry of agriculture along their career pathway.

Students will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually.

Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events

Additional Considerations

If a student does not have transportation, opportunities will be limited.

Organizations



Veterinary Medical Applications



Prerequisite: Advanced Animal Science

Course: 114OCT

Credits: 1

Length: 18 weeks

Placement: 11-12

Course Description

This course is a continuation of the Advanced Animal course but will provide more detailed training in the unlicensed veterinary assistant field. As a part of the curriculum, instruction is provided to assist students in practicing communication skills, utilizing listening skills to follow directions, practicing basic mathematics skills as applied to a veterinary medical setting, and reading to gain information and to perform assignments and tasks as directed. The purpose of Veterinary Medical Applications is to provide an in depth look into the veterinary sciences and seek possible careers in this diverse field of study. We will cover all animal species from large to small animal. This will include basic veterinary terminology, basic veterinary skills, and utilization of various tools. Students interested in Veterinary Technician, Veterinary Medicine or Agriculture Science Education as a career should take this class.

Student Activities

This upper-level course includes, but is not limited to, animal handling and restraint, health and safety, sanitation, surgical preparation, anatomy, physiology, medical terminology, infectious diseases, instrument and equipment identification, vaccine preparation and injection techniques, laws and ethics, and veterinary office procedures.

Students in Veterinary Medical Applications will have an opportunity to be a part of the largest student-led organization in the nation, The FFA Organization. Through the FFA, the students will have the opportunity to participate in real-world competitions and leadership contests at the district, state and national level. These competitions allow students access to more than one million dollars in scholarships annually. Students will also have the opportunity to expand their knowledge beyond the classroom through Supervised Agricultural Experiences (SAE's).

Competitions

Livestock Shows, Leadership Development Competitions, Career Development Events in Veterinary Science, etc.

Additional Considerations

If seeking certification, curriculum cannot be modified. Must get extended vet hours for certification. Students handle sharp objects and travel to the Arlington Shelter regularly.

Organizations



Certifications

Elanco Veterinarian Medical Applications
Certification Possible
Student Cost: \$35

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Agriculture, Food & Natural Resources

Certifications

Name	Course	Provider	Cost
OSHA	Agricultural Mechanics & Metal Technology	CareerSafe Online	Student Pays: \$ 25
The OSHA certification is an online 10 hour course. Students may access the course in class or at home with internet access. The course is broken up into modules with a test at the end of each module. Students must pass with a 70 or above in 3 attempts or less.			
Floral Design Certification	Floral Design	ICEV-Benz School of Floral Design	Student Pays: \$ 30
The Principles of Floral Design Certification endorsed by Benz School of Floral Design requires students to display a thorough understanding of the principles, elements, geometry and basic techniques used in floral design. In addition, students will become associated with the origins and history of floral design as well as be able to identify flowers and floral materials, design and create arrangements and understand the elements used in critiquing and appraising floral designs. The exam for this certification is offered to students during the last week of the course and is administered in the classroom. There are no age restrictions. Students must complete all Floral Design lessons through their ICEV account with a grade of 70% or higher. The students must also pass the final exam with a grade of 70% or higher.			
TPWD Hunter Safety	Wildlife Fisheries & Management	Texas Parks & Wildlife	Student Pays: \$ 15
This certification test is given as the final for the Wildlife Fisheries & Management course. Students must be at least 14 to take the certification test. There is a pretest and practice quizzes on the TPWD website: https://tpwd.texas.gov/education/hunter-education/how-to-get-your-texas-hunter-education-certification . Students must pass the exam with a 70% or higher.			
Principles of Livestock Selection & Evaluation	Livestock Production	ICEV	Student Pays: \$ 35
The Livestock Selection & Evaluation Certification endorsed by the National Collegiate Livestock Coaches Association requires students to identify and analyze livestock breeds and their external anatomy. They will also be expected to show understanding of selection criteria and major factors considered in livestock evaluation. The exam for this certification is offered to students during the last week of the course and is administered in the classroom. There are no age restrictions. Students must complete all Principles of Livestock Selection & Evaluation lessons through their ICEV account with a grade of 70% or higher. The students must also pass the final exam with a grade of 70% or higher.			
Texas Beef Quality	Livestock Production	Texas A&M AgriLife Extension	Student Pays: \$ 0
The program requires everyone involved with beef production to follow regulatory guidelines for product use and to use the Best Management Practices (BMPs), which are based on accepted scientific knowledge, to ensure safety and quality from the producer to the consumer. http://texasbeefquality.com/			
Elanco Veterinarian Medical Applications	Veterinary Medical Applications	iCEV	Student Pays: \$ 35

Students are tested clinical terminology and veterinary terms, demonstrate appropriate animal handling and care skills, vital signs, blood sampling and injection methods and much more.

<https://www.icevonline.com/student-certifications/veterinary-medical-applications-certification> Students must complete all Veterinarian Medical Application lessons through their ICEV account with a grade of 70% or higher. The students must also pass the final exam with a grade of 70% or higher.