Standard: Veterinary Science (IMRA26)

Subject: Career Development and Career and Technical Education
Grade: 11
Expectations: 81
Breakouts: 372

Career and Technical Education Employability Skills

(a) Implementation. The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(b) General requirements. These standards may not be offered as a standalone course. These standards shall be offered together with the essential knowledge and skills for career and technical education (CTE) courses in this chapter.

(c) Introduction.

(1) CTE instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

(2) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.

(3) The goal of the employability skills standards is to ensure that students develop essential skills for effective performance in the workplace, regardless of the occupation.

Veterinary Science

(a) Implementation
(1) The provisions of this section shall be implemented by school districts beginning with the 2025-2026 school year.
(2) School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills) as an integral part of this course.
(b) General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: Equine Science, Small Animal Management, or Livestock and Poultry Production. Students shall be awarded one credit for successful completion of this course.
(c) Introduction
(1) CTE courses identified as Level 1 or Level 2 courses in a CTE program of study must address the employability skills standards identified in subsection (d)(1) of this section.

(2) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

(3) CTE courses identified as Level 3 or Level 4 courses in a CTE program of study must address the employability skills standards identified in subsection (d)(2) of this section.

(4) The Agriculture, Food, and Natural Resources Career Cluster focuses on the production, processing, marketing, distribution, financing, and development of agricultural commodities and resources, including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

(5) 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.

(6) Veterinary Science covers topics relating to veterinary practices, including practices for large and small animal species. To prepare for careers in the field of animal science, students must attain academic knowledge and skills, 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. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills and technologies in a variety of settings.

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

(8) 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.

(d) Knowledge and Skills Statements

(0) Employability skills--Levels 3 and 4. In a CTE course identified as a Level 3 or Level 4 course in a CTE program of study, the student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:

(A) demonstrate dressing appropriately, speaking politely, and conducting oneself in a manner appropriate for the profession and work site

(i) demonstrate dressing appropriately for the profession

(ii) demonstrate speaking politely for the profession

(iii) demonstrate conducting oneself in a manner appropriate for the profession

(iv) demonstrate dressing appropriately for the work site

(v) demonstrate speaking politely for the work site

(vi) demonstrate conducting oneself in a manner appropriate for the work site

(B) analyze how teams can produce better outcomes through cooperation, contribution, and collaboration from members of the team;

(i) analyze how teams can produce better outcomes through cooperation from members of the team

(ii) analyze how teams can produce better outcomes through contribution from members of the team

(iii) analyze how teams can produce better outcomes through collaboration from members of the team

(C) present written and oral technical communication in a clear, concise, and effective manner for a variety of purposes and audiences, including explaining and justifying decisions;

(i) present written technical communication in a clear manner for a variety of purposes, including explaining decisions

(ii) present written technical communication in a concise manner for a variety of purposes, including explaining decisions

(iii) present written technical communication in a[n] effective manner for a variety of purposes, including explaining decisions

(iv) present written technical communication in a clear manner for a variety of audiences, including explaining decisions

(v) present written technical communication in a concise manner for a variety of audiences, including explaining decisions

(vi) present written technical communication in a[n] effective manner for a variety of audiences, including explaining decisions

(vii) present written technical communication in a clear manner for a variety of purposes, including justifying decisions

(viii) present written technical communication in a concise manner for a variety of purposes, including justifying decisions

(ix) present written technical communication in a[n] effective manner for a variety of purposes, including justifying decisions

(x) present written technical communication in a clear manner for a variety of audiences, including justifying decisions

(xi) present written technical communication in a concise manner for a variety of audiences, including justifying decisions

(xii) present written technical communication in a[n] effective manner for a variety of audiences, including justifying decisions

(xiii) present written oral communication in a clear manner for a variety of purposes, including explaining decisions

(xiv) present written oral communication in a concise manner for a variety of purposes, including explaining decisions

(xv) present written oral communication in a[n] effective manner for a variety of purposes, including explaining decisions

(xvi) present written oral communication in a clear manner for a variety of audiences, including explaining decisions

(xvii) present written oral communication in a concise manner for a variety of audiences, including explaining decisions

(xviii) present written oral communication in a[n] effective manner for a variety of audiences, including explaining decisions

(xix) present written oral communication in a clear manner for a variety of purposes, including justifying decisions

(xx) present written oral communication in a concise manner for a variety of purposes, including justifying decisions

(xxi) present written oral communication in a[n] effective manner for a variety of purposes, including justifying decisions

(xxii) present written oral communication in a clear manner for a variety of audiences, including justifying decisions

(xxiii) present written oral communication in a concise manner for a variety of audiences, including justifying decisions

(xxiv) present written oral communication in a[n] effective manner for a variety of audiences, including justifying decisions

(D) use time-management skills independently and in groups to prioritize tasks, follow schedules, and tend to goal-relevant activities in a way that optimizes efficiency and results;

(i) use time-management skills independently to prioritize tasks in a way that optimizes efficiency

(ii) use time-management skills independently to prioritize tasks in a way that optimizes results

(iii) use time-management skills independently to follow schedules in a way that optimizes efficiency

(iv) use time-management skills independently to follow schedules in a way that optimizes results

(v) use time-management skills independently tend to goal-relevant activities in a way that optimizes efficiency

(vi) use time-management skills independently tend to goal-relevant activities in a way that optimizes results

(vii) use time-management skills in groups to prioritize tasks in a way that optimizes efficiency

(viii) use time-management skills in groups to prioritize tasks in a way that optimizes results

(ix) use time-management skills in groups to follow schedules in a way that optimizes efficiency

(x) use time-management skills in groups to follow schedules in a way that optimizes results

(xi) use time-management skills in groups tend to goal-relevant activities in a way that optimizes efficiency

(xii) use time-management skills in groups tend to goal-relevant activities in a way that optimizes results

(E) describe the importance of and demonstrate punctuality, dependability, reliability, and responsibility in reporting for duty and performing assigned tasks as directed;

(i) describe the importance of punctuality in reporting for duty

(ii) describe the importance of dependability in reporting for duty

(iii) describe the importance of reliability in reporting for duty

(iv) describe the importance of responsibility in reporting for duty

(v) describe the importance of punctuality in performing assigned tasks as directed

(vi) describe the importance of dependability in performing assigned tasks as directed

(vii) describe the importance of reliability in performing assigned tasks as directed

(viii) describe the importance of responsibility in performing assigned tasks as directed

(F) demonstrate respect for differences in the workplace;

(i) demonstrate respect for differences in the workplace

(G) identify the importance and benefits of meritocracy, a hard work ethic, and equal opportunity in the workplace;

(i) identify the importance of meritocracy in the workplace

(ii) identify the importance of a hard work ethic in the workplace

(iii) identify the importance of equal opportunity in the workplace

(iv) identify the benefits of meritocracy in the workplace

(v) identify the benefits of a hard work ethic in the workplace

(vi) identify the benefits of equal opportunity in the workplace

(H) identify consequences relating to discrimination and harassment;

(i) identify consequences relating to discrimination

(ii) identify consequences relating to harassment

(I) demonstrate knowledge of personal and occupational health and safety, applicable regulations, and first aid in the workplace and discuss why it is critical for employees and employers to maintain a safe work environment;

(i) demonstrate knowledge of personal health in the workplace

(ii) demonstrate knowledge of personal safety in the workplace

(iii) demonstrate knowledge of occupational health in the workplace

(iv) demonstrate knowledge of occupational safety in the workplace

(v) demonstrate knowledge of applicable regulations in the workplace

(vi) demonstrate knowledge of first aid in the workplace

(vii) discuss why it is critical for employees to maintain a safe work environment

(viii) discuss why it is critical for employers to maintain a safe work environment

(J) compare skills and characteristics of managers and leaders in the workplace; and

(i) compare skills and characteristics of managers in the workplace

(ii) compare skills and characteristics of leaders in the workplace

(K) identify career development opportunities in the field: (i) education and training; (ii) credentialing; (iii) internships and apprenticeships; and (iv) entrepreneurship opportunities;

(i) identify career development opportunities in the field: education

(ii) identify career development opportunities in the field: training

(iii) identify career development opportunities in the field: credentialing

(iv) identify career development opportunities in the field: internships

(v) identify career development opportunities in the field: apprenticeships

(vi) identify career development opportunities in the field: entrepreneurship opportunities

(L) demonstrate an understanding of legal and ethical responsibilities in relation to the field.

(i) demonstrate an understanding of legal responsibilities in relation to the field

(ii) demonstrate an understanding of ethical responsibilities in relation to the field

(1) The student develops a supervised agricultural experience program. The student is expected to:

(A) plan, propose, conduct, document, and evaluate a supervised agricultural experience program as an experiential learning activity; and

(i) plan a supervised agricultural experience program as an experiential learning activity

(ii) propose a supervised agricultural experience program as an experiential learning activity

(iii) conduct a supervised agricultural experience program as an experiential learning activity

(iv) document a supervised agricultural experience program as an experiential learning activity

(v) evaluate a supervised agricultural experience program as an experiential learning activity

(B) use appropriate record-keeping skills as they relate to the supervised agricultural experience program.

(i) use appropriate record-keeping skills as they relate to the supervised agricultural experience program

(2) The student develops leadership skills through participation in an agricultural youth organization. The student is expected to:

(A) participate in youth agricultural leadership opportunities;

(i) participate in youth agricultural leadership opportunities [in an agricultural youth organization]

(B) review and participate in a local program of activities; and

(i) review a local program of activities [in an agricultural youth organization]

(ii) participate in a local program of activities [in an agricultural youth organization]

(C) create or update documentation of relevant agricultural experience such as community service, professional, or classroom experiences.

(i) create or update documentation of relevant agricultural experience

(3) The student understands safety and health practices associated with working in veterinary medicine. The student is expected to:

(A) explain the importance of safe practices such as handling, restraint, and proper use of tools and equipment when working with animals;

(i) explain the importance of safe practices when working with animals

(B) identify and discuss transmission and prevention of zoonotic diseases in large and small animal species;

(i) identify transmission of zoonotic diseases in large animal species

(ii) identify transmission of zoonotic diseases in small animal species

(iii) identify prevention of zoonotic diseases in large animal species

(iv) identify prevention of zoonotic diseases in small animal species

(v) discuss transmission of zoonotic diseases in large animal species

(vi) discuss transmission of zoonotic diseases in small animal species

(vii) discuss prevention of zoonotic diseases in large animal species

(viii) discuss prevention of zoonotic diseases in small animal species

(C) describe sanitation methods to prevent the spread of pathogens and maintain asepsis in sterile environments;

(i) describe sanitation methods to prevent the spread of pathogens in sterile environments

(ii) describe sanitation methods to maintain asepsis in sterile environments

(D) locate, interpret, and implement safety data sheets (SDS) for handling chemicals;

(i) locate safety data sheets (SDS) for handling chemicals

(ii) interpret safety data sheets (SDS) for handling chemicals

(iii) implement safety data sheets (SDS) for handling chemicals

(E) demonstrate and explain safe usage of clinical tools and equipment; and

(i) demonstrate safe usage of clinical tools

(ii) demonstrate safe usage of clinical equipment

(iii) explain safe usage of clinical tools

(iv) explain safe usage of clinical equipment

(F) perform proper disposal of sharps and biohazards.

(i) perform proper disposal of sharps

(ii) perform proper disposal of biohazards

(4) The student understands current topics, professional ethics, and laws that relate to veterinary medicine. The student is expected to:

(A) research and discuss historical events, trends, and issues that have impacted veterinary medicine;

(i) research historical events that have impacted veterinary medicine

(ii) research trends that have impacted veterinary medicine

(iii) research issues that have impacted veterinary medicine

(iv) discuss historical events that have impacted veterinary medicine

(v) discuss trends that have impacted veterinary medicine

(vi) discuss issues that have impacted veterinary medicine

(B) analyze topics related to veterinary medical ethics, including animal rights and animal welfare; and

(i) analyze topics related to veterinary medical ethics, including animal rights

(ii) analyze topics related to veterinary medical ethics, including animal welfare

(C) explain policies and procedures in veterinary medicine that reflect local, state, and federal laws.

(i) explain policies in veterinary medicine that reflect local laws

(ii) explain policies in veterinary medicine that reflect state laws

(iii) explain policies in veterinary medicine that reflect federal laws

(iv) explain procedures in veterinary medicine that reflect local laws

(v) explain procedures in veterinary medicine that reflect state laws

(vi) explain procedures in veterinary medicine that reflect federal laws

(5) The student evaluates effective management approaches and marketing strategies to determine their importance to the success of veterinary practices such as clinics and hospitals. The student is expected to:

(A) describe how the human-animal bond impacts veterinary practices when working with clients and their animals;

(i) describe how the human-animal bond impacts veterinary practices when working with clients

(ii) describe how the human-animal bond impacts veterinary practices when working with [clients'] animals

(B) identify and demonstrate skills needed to communicate effectively with clients and veterinary professionals;

(i) identify skills needed to communicate effectively with clients

(ii) identify skills needed to communicate effectively with veterinary professionals

(iii) demonstrate skills needed to communicate effectively with clients

(iv) demonstrate skills needed to communicate effectively with veterinary professionals

(C) identify marketing strategies and explain how marketing affects the success of a veterinary practice; and

(i) identify marketing strategies of a veterinary practice

(ii) explain how marketing affects the success of a veterinary practice

(D) research and discuss how electronic technology such as computer programs, medical records, hospital-to-hospital communication, and tablets is used in a veterinary practice.

(i) research how electronic technology is used in a veterinary practice

(ii) discuss how electronic technology is used in a veterinary practice

(6) The student communicates the importance of medical terminology, evaluates veterinary terms to discover their meanings, and demonstrates the ability to use terms correctly. The student is expected to:

(A) analyze Greek and Latin prefixes, suffixes, and roots to determine the meaning of veterinary terms;

(i) analyze Greek prefixes to determine the meaning of veterinary terms

(ii) analyze Greek suffixes to determine the meaning of veterinary terms

(iii) analyze Greek roots to determine the meaning of veterinary terms

(iv) analyze Latin prefixes to determine the meaning of veterinary terms

(v) analyze Latin suffixes to determine the meaning of veterinary terms

(vi) analyze Latin roots to determine the meaning of veterinary terms

(B) identify, pronounce, and spell veterinary terms appropriately; and

(i) identify veterinary terms appropriately

(ii) pronounce veterinary terms appropriately

(iii) spell veterinary terms appropriately

(C) use directional anatomy terms appropriately for large and small animal species.

(i) use directional anatomy terms appropriately for large animal species

(ii) use directional anatomy terms appropriately for small animal species

(7) The student understands proper animal handling as it relates to characteristics and behavior. The student is expected to:

(A) identify animal breeds according to characteristics;

(i) identify animal breeds according to characteristics

(B) identify and compare normal and abnormal behavior within and among various animal species; and

(i) identify normal behavior within various animal species

(ii) identify normal behavior among various animal species

(iii) identify abnormal behavior within various animal species

(iv) identify abnormal behavior among various animal species

(v) compare normal and abnormal behavior within various animal species

(vi) compare normal and abnormal behavior among various animal species

(C) identify and discuss correct handling and restraint protocols for large and small animal species such as muzzling, lateral recumbency, sternal recumbency, jugular venipuncture, and haltering.

(i) identify correct handling protocols for large animal species

(ii) identify correct handling protocols for small animal species

(iii) identify correct restraint protocols for large animal species

(iv) identify correct restraint protocols for small animal species

(v) discuss correct handling protocols for large animal species

(vi) discuss correct handling protocols for small animal species

(vii) discuss correct restraint protocols for large animal species

(viii) discuss correct restraint protocols for small animal species

(8) The student explains anatomy and physiology of animals. The student is expected to:

(A) identify the parts and functions of the skeletal, muscular, respiratory, circulatory, digestive, endocrine, and nervous systems for large and small animal species; and

(i) identify the parts of the skeletal systems for large animal species

(ii) identify the parts of the skeletal systems for small animal species

(iii) identify the parts of the muscular systems for large animal species

(iv) identify the parts of the muscular systems for small animal species

(v) identify the parts of the respiratory systems for large animal species

(vi) identify the parts of the respiratory systems for small animal species

(vii) identify the parts of the circulatory systems for large animal species

(viii) identify the parts of the circulatory systems for small animal species

(ix) identify the parts of the digestive systems for large animal species

(x) identify the parts of the digestive systems for small animal species

(xi) identify the parts of the endocrine systems for large animal species

(xii) identify the parts of the endocrine systems for small animal species

(xiii) identify the parts of the nervous systems for large animal species

(xiv) identify the parts of the nervous systems for small animal species

(xv) identify the functions of the skeletal systems for large animal species

(xvi) identify the functions of the skeletal systems for small animal species

(xvii) identify the functions of the muscular systems for large animal species

(xviii) identify the functions of the muscular systems for small animal species

(xix) identify the functions of the respiratory systems for large animal species

(xx) identify the functions of the respiratory systems for small animal species

(xxi) identify the functions of the circulatory systems for large animal species

(xxii) identify the functions of the circulatory systems for small animal species

(xxiii) identify the functions of the digestive systems for large animal species

(xxiv) identify the functions of the digestive systems for small animal species

(xxv) identify the functions of the endocrine systems for large animal species

(xxvi) identify the functions of the endocrine systems for small animal species

(xxvii) identify the functions of the nervous systems for large animal species

(xxviii) identify the functions of the nervous systems for small animal species

(B) describe the interrelationships among animal body systems.

(i) describe the interrelationships among animal body systems

(9) The student determines the importance of animal nutrition in maintaining a healthy animal. The student is expected to:

(A) identify sources of nutrients and classes of feeds for large and small animal species;

(i) identify sources of nutrients for large animal species

(ii) identify sources of nutrients for small animal species

(iii) identify classes of feeds for large animal species

(iv) identify classes of feeds for small animal species

(B) identify feed additives for large and small animal species and describe how additives affect the food supply;

(i) identify feed additives for large animal species

(ii) identify feed additives for small animal species

(iii) describe how [feed] additives affect the food supply

(C) analyze dietary needs and feed-quality issues for large and small animal species and their effect on feeding practices; and

(i) analyze dietary needs for large animal species

(ii) analyze dietary needs for small animal species

(iii) analyze feed-quality issues for large animal species

(iv) analyze feed-quality issues for small animal species

(v) analyze the effects [of dietary needs] on feeding practices

(vi) analyze the effects [of feed-quality issues] on feeding practices

(D) research and compare the nutritional value of feeds such as prescription, commercial, homemade, fad, and raw diets for large and small animal species.

(i) research the nutritional value of feeds for large animal species

(ii) research the nutritional value of feeds for small animal species

(iii) compare the nutritional value of feeds for large animal species

(iv) compare the nutritional value of feeds for small animal species

(10) The student evaluates an animal's health during a clinical examination. The student is expected to:

(A) describe the characteristics and signs of a healthy and an unhealthy animal;

(i) describe the characteristics of a healthy animal

(ii) describe the characteristics of an unhealthy animal

(iii) describe the signs of a healthy animal

(iv) describe the signs of an unhealthy animal

(B) identify ranges for healthy vital signs for large and small animal species such as temperature, pulse, respiration, hydration, and capillary refill time;

(i) identify ranges for healthy vital signs for large animal species

(ii) identify ranges for healthy vital signs for small animal species

(C) demonstrate the proper procedures for obtaining vital signs for large and small animal species and interpret vital sign measurements to determine the health of the animal;

(i) demonstrate the proper procedures for obtaining vital signs for large animal species

(ii) demonstrate the proper procedures for obtaining vital signs for small animal species

(iii) interpret vital sign measurements to determine the health of the [large] animal

(iv) interpret vital sign measurements to determine the health of the [small] animal

(D) describe effects of age, stress, and environmental factors on vital signs of animals;

(i) describe effects of age on vital signs of animals

(ii) describe effects of stress on vital signs of animals

(iii) describe effects of environmental factors on vital signs of animals

(E) explain procedures for physical examinations for large and small animal species;

(i) explain procedures for physical examinations for large animal species

(ii) explain procedures for physical examinations for small animal species

(F) explain the anatomical regional approach to assess an animal's health;

(i) explain the anatomical regional approach to assess an animal's health

(G) apply mathematical skills to calculate weight and linear body measurement for large and small animal species and to convert between measurement systems; and

(i) apply mathematical skills to calculate weight for large animal species

(ii) apply mathematical skills to calculate weight for small animal species

(iii) apply mathematical skills to calculate linear body measurement for large animal species

(iv) apply mathematical skills to calculate linear body measurement for small animal species

(v) apply mathematical skills to convert between measurement systems

(H) analyze tables, charts, and graphs to interpret large and small animal patient and clinical data.

(i) analyze tables to interpret large animal patient data

(ii) analyze tables to interpret large animal clinical data

(iii) analyze tables to interpret small animal patient data

(iv) analyze tables to interpret small animal clinical data

(v) analyze charts to interpret large animal patient data

(vi) analyze charts to interpret large animal clinical data

(vii) analyze charts to interpret small animal patient data

(viii) analyze charts to interpret small animal clinical data

(ix) analyze graphs to interpret large animal patient data

(x) analyze graphs to interpret large animal clinical data

(xi) analyze graphs to interpret small animal patient data

(xii) analyze graphs to interpret small animal clinical data

(11) The student analyzes how diseases and parasites affect animal health. The student is expected to:

(A) describe the process of immunity and disease transmission for large and small animal species;

(i) describe the process of immunity for large animal species

(ii) describe the process of immunity for small animal species

(iii) describe the process of disease transmission for large animal species

(iv) describe the process of disease transmission for small animal species

(B) identify and describe pathogens for large and small animal species and the diseases they cause;

(i) identify pathogens for large animal species

(ii) identify pathogens for small animal species

(iii) identify diseases [caused by pathogens] for large animal species

(iv) identify diseases [caused by pathogens] for small animal species

(v) describe pathogens for large animal species

(vi) describe pathogens for small animal species

(vii) describe diseases [caused by pathogens] for large animal species

(viii) describe diseases [caused by pathogens] for small animal species

(C) describe the effects that diseases have on various body systems for large and small animal species;

(i) describe the effects that diseases have on various body systems for large animal species

(ii) describe the effects that diseases have on various body systems for small animal species

(D) identify parasites for large and small animal species using common and scientific names;

(i) identify parasites for large animal species using common names

(ii) identify parasites for large animal species using scientific names

(iii) identify parasites for small animal species using common names

(iv) identify parasites for small animal species using scientific names

(E) describe life cycles of parasites found in large and small animal species;

(i) describe life cycles of parasites found in large animal species

(ii) describe life cycles of parasites found in small animal species

(F) explain how parasites found in large and small animal species are transmitted and explain the effects on the host;

(i) explain how parasites found in large animal species are transmitted

(ii) explain how parasites found in small animal species are transmitted

(iii) explain the effects [of parasites] on the host [in large animal species]

(iv) explain the effects [of parasites] on the host [in small animal species]

(G) describe parasitic diagnostic procedures for large and small animal species; and

(i) describe parasitic diagnostic procedures for large animal species

(ii) describe parasitic diagnostic procedures for small animal species

(H) describe treatment protocols for parasites found in large and small animal species.

(i) describe treatment protocols for parasites found in large animal species

(ii) describe treatment protocols for parasites found in small animal species

(12) The student examines various aspects of veterinary laboratory procedures. The student is expected to:

(A) explain the procedures used in collecting, handling, and preparing fecal, blood, and urine specimens for large and small animal species;

(i) explain the procedures used in collecting fecal specimens for large animal species

(ii) explain the procedures used in collecting fecal specimens for small animal species

(iii) explain the procedures used in collecting blood specimens for large animal species

(iv) explain the procedures used in collecting blood specimens for small animal species

(v) explain the procedures used in collecting urine specimens for large animal species

(vi) explain the procedures used in collecting urine specimens for small animal species

(vii) explain the procedures used in handling fecal specimens for large animal species

(viii) explain the procedures used in handling fecal specimens for small animal species

(ix) explain the procedures used in handling blood specimens for large animal species

(x) explain the procedures used in handling blood specimens for small animal species

(xi) explain the procedures used in handling urine specimens for large animal species

(xii) explain the procedures used in handling urine specimens for small animal species

(xiii) explain the procedures used in preparing fecal specimens for large animal species

(xiv) explain the procedures used in preparing fecal specimens for small animal species

(xv) explain the procedures used in preparing blood specimens for large animal species

(xvi) explain the procedures used in preparing blood specimens for small animal species

(xvii) explain the procedures used in preparing urine specimens for large animal species

(xviii) explain the procedures used in preparing urine specimens for small animal species

(B) explain veterinary procedures used in examining fecal, blood, and urine specimens; and

(i) explain veterinary procedures used in examining fecal specimens

(ii) explain veterinary procedures used in examining blood specimens

(iii) explain veterinary procedures used in examining urine specimens

(C) analyze and compare normal and abnormal results obtained in veterinary laboratory procedures.

(i) analyze normal results obtained in veterinary laboratory procedures

(ii) analyze abnormal results obtained in veterinary laboratory procedures

(iii) compare normal and abnormal results obtained in veterinary laboratory procedures

(13) The student analyzes technical veterinary procedures and skills. The student is expected to:

(A) explain the care, maintenance, and use of equipment and instruments found in veterinary practices;

(i) explain the care of equipment found in veterinary practices

(ii) explain the care of instruments found in veterinary practices

(iii) explain the maintenance of equipment found in veterinary practices

(iv) explain the maintenance of instruments found in veterinary practices

(v) explain the use of equipment found in veterinary practices

(vi) explain the use of instruments found in veterinary practices

(B) interpret and prepare a veterinary medical record, adhering to client and patient confidentiality;

(i) interpret a veterinary medical record, adhering to client confidentiality

(ii) interpret a veterinary medical record, adhering to patient confidentiality

(iii) prepare a veterinary medical record, adhering to client confidentiality

(iv) prepare a veterinary medical record, adhering to patient confidentiality

(C) explain and demonstrate routine animal care skills such as administering medications, nail trimming, bathing, dipping, grooming, ear cleaning, expressing anal sacs, dental care, placing a tail tie, and ownership identification methods;

(i) explain routine animal care skills

(ii) demonstrate routine animal care skills

(D) explain and demonstrate therapeutic care for large and small animal species such as patient observation, maintaining and administering fluids, applying and removing bandages, removing sutures, caring for open wounds, and providing hydrotherapy physical therapy;

(i) explain therapeutic care for large animal species

(ii) explain therapeutic care for small animal species

(iii) demonstrate therapeutic care for large animal species

(iv) demonstrate therapeutic care for small animal species

(E) describe emergency protocols and first aid procedures for large and small animal species, including cardiopulmonary resuscitation, control of bleeding, and signs of shock; and

(i) describe emergency protocols for large animal species, including cardiopulmonary resuscitation

(ii) describe emergency protocols for large animal species, including control of bleeding

(iii) describe emergency protocols for large animal species, including signs of shock

(iv) describe emergency protocols for small animal species, including cardiopulmonary resuscitation

(v) describe emergency protocols for small animal species, including control of bleeding

(vi) describe emergency protocols for small animal species, including signs of shock

(vii) describe first aid procedures for large animal species, including cardiopulmonary resuscitation

(viii) describe first aid procedures for large animal species, including control of bleeding

(ix) describe first aid procedures for large animal species, including signs of shock

(x) describe first aid procedures for small animal species, including cardiopulmonary resuscitation

(xi) describe first aid procedures for small animal species, including control of bleeding

(xii) describe first aid procedures for small animal species, including signs of shock

(F) research and compare veterinary care of specialty patients, including newborns, orphans, geriatric animals, recumbent animals, and animals with disabilities.

(i) research veterinary care of specialty patients, including newborns

(ii) research veterinary care of specialty patients, including orphans

(iii) research veterinary care of specialty patients, including geriatric animals

(iv) research veterinary care of specialty patients, including recumbent animals

(v) research veterinary care of specialty patients, including animals with disabilities

(vi) compare veterinary care of specialty patients, including newborns

(vii) compare veterinary care of specialty patients, including orphans

(viii) compare veterinary care of specialty patients, including geriatric animals

(ix) compare veterinary care of specialty patients, including recumbent animals

(x) compare veterinary care of specialty patients, including animals with disabilities

(14) The student identifies and discusses surgical-assisting procedures and skills. The student is expected to:

(A) explain the veterinary protocol for pre-surgical and post-surgical care of a patient;

(i) explain the veterinary protocol for pre-surgical care of a patient

(ii) explain the veterinary protocol for post-surgical care of a patient

(B) identify tools and equipment used in veterinary surgical procedures;

(i) identify tools used in veterinary surgical procedures

(ii) identify equipment used in veterinary surgical procedures

(C) describe methods used in the preparation, sterilization, and opening of surgery packs; and

(i) describe methods used in the preparation of surgery packs

(ii) describe methods used in the sterilization of surgery packs

(iii) describe methods used in the opening of surgery packs

(D) describe veterinary surgical procedures such as spaying, castration, dehorning, docking, dental prophylaxis, and tooth extraction.

(i) describe veterinary surgical procedures

(15) The student identifies imaging equipment and understands how to safely operate and maintain equipment. The student is expected to:

(A) research and explain the parts and function of imaging equipment such as an ultrasonograph, endoscope, electrocardiograph, and radiograph;

(i) research the parts of imaging equipment

(ii) research the function of imaging equipment

(iii) explain the parts of imaging equipment

(iv) explain the function of imaging equipment

(B) explain safety, maintenance, and operation procedures of imaging equipment;

(i) explain safety procedures of imaging equipment

(ii) explain maintenance procedures of imaging equipment

(iii) explain operation procedures of imaging equipment

(C) demonstrate patient restraint and positioning methods used for imaging purposes of large and small animal species; and

(i) demonstrate patient restraint methods used for imaging purposes of large animal species

(ii) demonstrate patient restraint methods used for imaging purposes of small animal species

(iii) demonstrate patient positioning methods used for imaging purposes of large animal species

(iv) demonstrate patient positioning methods used for imaging purposes of small animal species

(D) differentiate between the images from various imaging equipment.

(i) differentiate between the images from various imaging equipment

(16) The student identifies veterinary pharmacology procedures and skills. The student is expected to:

(A) identify veterinary medications according to their classification, schedule, form, routes of administration, and methods of administration;

(i) identify veterinary medications according to their classification

(ii) identify veterinary medications according to their schedule

(iii) identify veterinary medications according to their form

(iv) identify veterinary medications according to their routes of administration

(v) identify veterinary medications according to their methods of administration

(B) explain handling, storage, distribution, protocols, and laws for veterinary medications, including controlled substances;

(i) explain handling [of] veterinary medications, including controlled substances

(ii) explain storage [of] veterinary medications, including controlled substances

(iii) explain distribution [of] veterinary medications, including controlled substances

(iv) explain protocols for veterinary medications, including controlled substances

(v) explain laws for veterinary medications, including controlled substances

(C) calculate dosage for large and small animal species using factors such as concentration of drug, weight of animal, and prescribed dosage;

(i) calculate [veterinary medication] dosage for large animal species using factors

(ii) calculate [veterinary medication] dosage for small animal species using factors

(D) prepare a veterinary prescription label with identifiers that are required by the United States Food and Drug Administration;

(i) prepare a veterinary prescription label with identifiers that are required by the United States Food and Drug Administration

(E) identify and explain the equipment and instruments used to safely administer medications for large and small animal species; and

(i) identify the equipment used to safely administer medications for large animal species

(ii) identify the equipment used to safely administer medications for small animal species

(iii) identify the instruments used to safely administer medications for large animal species

(iv) identify the instruments used to safely administer medications for small animal species

(v) explain the equipment used to safely administer medications for large animal species

(vi) explain the equipment used to safely administer medications for small animal species

(vii) explain the instruments used to safely administer medications for large animal species

(viii) explain the instruments used to safely administer medications for small animal species

(F) research and present emerging trends in veterinary pharmacology such as internet pharmacies, herbal supplements, organic labeling, and extra-label and off-label use of medications.

(i) research emerging trends in veterinary pharmacology

(ii) present emerging trends in veterinary pharmacology