2006 Mississippi Curriculum Framework

Postsecondary Veterinary Technology

(Program CIP: 51.0808 – Veterinary/Animal Health Technology/Technician and Veterinary Assistant)

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Standards in this document are based on information from the following organizations:

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List	American Veterinary Medical Association. (2004). *Accreditation policies and procedures of the AVMA Committee on Veterinary Technician Education and Activities (CVTEA)*. Schaumburg, IL: Author.
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Foreword

As the world economy continues to evolve, businesses and industries must adopt new practices and processes in order to survive. Quality and cost control, work teams and participatory management, and an infusion of technology are transforming the way people work and do business. Employees are now expected to read, write, and communicate effectively; think creatively, solve problems, and make decisions; and interact with each other and the technologies in the workplace. Vocational-technical programs must also adopt these practices in order to provide graduates who can enter and advance in the changing work world.

The curriculum framework in this document reflects these changes in the workplace and a number of other factors that impact on local vocational-technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

Each postsecondary program of instruction consists of a program description and a suggested sequence of courses which focus on the development of occupational competencies. Each vocational-technical course in this sequence has been written using a common format which includes the following components:

- Course Name – A common name that will be used by all community/junior colleges in reporting students.

- Course Abbreviation – A common abbreviation that will be used by all community/junior colleges in reporting students.

- Classification – Courses may be classified as:
    - Vocational-technical core – A required vocational-technical course for all students.
    - Area of concentration (AOC) core – A course required in an area of concentration of a cluster of programs.
    - Vocational-technical elective – An elective vocational-technical course.
    - Related academic course – An academic course which provides academic skills and knowledge directly related to the program area.
    - Academic core – An academic course which is required as part of the requirements for an Associate degree.

- Description – A short narrative which includes the major purpose(s) of the course and the recommended number of hours of lecture and laboratory activities to be conducted each week during a regular semester.

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course.

- Corequisites – A listing of courses that may be taken while enrolled in the course.

- Competencies and Suggested Objectives – A listing of the competencies (major concepts and performances) and of the suggested student objectives that will enable students to demonstrate mastery of these competencies.

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75 percent of the time allocated to each course. The remaining 25 percent of each course should be developed at the local district level and may reflect:
    - Additional competencies and objectives within the course related to topics not found in the State framework, including activities related to specific needs of industries in the community college district.
    - Activities which develop a higher level of mastery on the existing competencies and suggested objectives.
    - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed/revised.
    - Activities which implement components of the Mississippi Tech Prep initiative, including integration of academic and vocational-technical skills and coursework, school-to-work transition activities, and articulation of secondary and postsecondary vocational-technical programs.
    - Individualized learning activities, including worksite learning activities, to better prepare individuals in the courses for their chosen occupational area.

- Sequencing of the course within a program is left to the discretion of the local district. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors.

- Programs that offer an Associate of Applied Science degree must include a minimum 15 semester credit hour academic core. Specific courses to be taken within this core are to be determined by the local district. Minimum academic core courses are as follows:
    - 3 semester credit hours — Math/Science Elective
    - 3 semester credit hours — Written Communications Elective
    - 3 semester credit hours — Oral Communications Elective
    - 3 semester credit hours — Humanities/Fine Arts Elective
    - 3 semester credit hours — Social/Behavioral Science Elective

It is recommended that courses in the academic core be spaced out over the entire length of the program, so that students complete some academic and vocational-technical courses each semester. Each community/junior college has the discretion to select the actual courses that are required to meet this academic core requirement.

- In instances where secondary programs are directly related to community and junior college programs, competencies and suggested objectives from the high school programs are listed as Baseline Competencies. These competencies and objectives reflect skills and knowledge that are directly related to the community and junior college vocational-technical program. In adopting the curriculum framework, each community and junior college is asked to give assurances that:
    - Students who can demonstrate mastery of the Baseline Competencies do not receive duplicate instruction, and
    - Students who cannot demonstrate mastery of this content will be given the opportunity to do so.

- The roles of the Baseline Competencies are to:
    - Assist community/junior college personnel in developing articulation agreements with high schools, and
    - Ensure that all community and junior college courses provide a higher level of instruction than their secondary counterparts.

- The Baseline Competencies may be taught as special "Introduction" courses for 3-6 semester hours of institutional credit which will not count toward Associate degree requirements. Community and junior colleges may choose to integrate the Baseline Competencies into ongoing courses in lieu of offering the "Introduction" courses or may offer the competencies through special projects or individualized instruction methods.

- Technical elective courses have been included to allow community colleges and students to customize programs to meet the needs of industries and employers in their area.

In order to provide flexibility within the districts, individual courses within a framework may be customized by:

- Adding new competencies and suggested objectives.
- Revising or extending the suggested objectives for individual competencies.
- Integrating baseline competencies from associated high school programs.
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the State Board for Community and Junior Colleges [SBCJC] of the change).

In addition, the curriculum framework as a whole may be customized by:

- Resequencing courses within the suggested course sequence.
- Developing and adding a new course which meets specific needs of industries and other clients in the community or junior college district (with SBCJC approval).
- Utilizing the technical elective options in many of the curricula to customize programs.

Table of Contents

Program Description

The Veterinary Technology Program is a one-plus-one program offered by the community/junior college and the College of Veterinary Medicine of Mississippi State University. The first year of the program is taught at the community/junior college, and the second year is taught at Mississippi State University's College of Veterinary Medicine. Students successfully completing the program are prepared to enter various animal technology careers such as Veterinary Technician (Animal Health) in small animal practice, small animal emergency practice, mixed animal practice, large animal practice, equine practice, and food animal practice. Veterinary Technology programs may be accredited by the American Veterinary Medical Association. Graduates may become Registered Veterinary Technicians through the Mississippi Board of Veterinary Medicine.

Graduates would also be prepared for:

(1) Taking the Technology Laboratory Animal Technician certification examination to become an Assistant Laboratory Animal Technician.
(2) Taking the Laboratory Animal Technician certification examination after attaining Assistant Laboratory Animal Technician certification.
(3) Taking the Laboratory Animal Technologist certification examination after attaining Laboratory Animal Technician certification and completing four years of work experience in a laboratory animal facility.

After successfully completing the program, the student will be awarded an Associate of Applied Science Degree from the community/junior college.

Industry standards are based on the *American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List*.

Suggested Course Sequence*
Veterinary Technology

FIRST YEAR

3 sch Written Communications Elective
4 sch Math/Science Elective†
1 sch Veterinary Math Calculations (VAT 1111)
3 sch Animal Restraint and Medication (VAT 1213)
3 sch Animal Anatomy and Physiology (VAT 1313)
4 sch Surgical and Hospital Techniques I (VAT 1414)

18 sch

3 sch Oral Communications Elective
3 sch Humanities/Fine Arts Elective†
3 sch Behavioral/Social Science Elective†
2 sch Animal Parasites and Diseases (VAT 1512)
3 sch Clinical Pathology (VAT 1613)
4 sch Surgical and Hospital Techniques II (VAT 1424)

18 sch

SECOND YEAR
Completed at Mississippi State University College of Veterinary Medicine

1 sch Clinical Elective (VAT 2151)
1 sch Business Procedures (VAT 2161)
3 sch Laboratory Animal Care (VAT 2171)
1 sch Necropsy (VAT 2181)
1 sch Pharmacy (VAT 2191)
1 sch LARAC (VAT 2173)
3 sch Community Practice (VAT 2213)
3 sch Internal Medicine-ICU (VAT 2223)
3 sch Equine Services (VAT 2233)
3 sch Food Animal (VAT 2243)
3 sch Small Animal Surgery (VAT 2253)
3 sch Anesthesia (VAT 2263)
3 sch Radiology (VAT 2273)
3 sch Clinical Pathology (VAT 2283)

The second year clinical rotations and courses begin during August and are completed by the end of the spring semester.

Students must be 18 years of age before participating in the Radiology rotation.

SUMMER

4 sch Preceptorship (VAT 2184) will be the last rotation, and follows successful completion of two years of course work. This rotation is administered by the community/junior college.

* Students who lack entry level skills in math, English, sciences, etc. will be provided related studies.

† Selected with approval of the Veterinary Technology Program Director.

Veterinary Technology Courses

Course Name: Veterinary Math Calculations

Course Abbreviation: VAT 1111

Classification: Vocational-Technical Core

Description: Veterinary Math Calculations provides a consistent approach to computations involved in drug and solution problems. (1 sch: 1 hr. lecture)

Prerequisite: None

Competencies and Suggested Objectives
1. Demonstrate the numeration systems, fractions, decimals, percentages, and ratio-proportion problems. a. Utilize pretest to assess level of mathematics competencies. b. Identify the two numeration systems. c. Utilize the basic operations of fractions, decimals, and percentages. d. Solve problems using ratio and proportion.
2. Differentiate among the metric, apothecaries', and household systems and their units of measurement. a. Perform calculations in the metric system of measurement. b. Convert units of measurement within the metric, apothecaries', and household systems of measurement. c. Demonstrate proficiency with symbols in the metric, apothecaries', and household systems of measurement. d. Utilize the proportion method when changing units of measurement from one system to another.
3. Calculate oral and parenteral dosages. a. Use the basic operations of ratio and proportions to solve problems for oral and parenteral medications. b. Demonstrate proficiency in correctly reading medication labels and orders. c. Determine dosage for oral and parenteral medications.
4. Calculate intravenous solution rates and the preparation of solutions. a. Demonstrate proficiency when calculating the intravenous rates with varying drop factor sets. b. Determine the correct length of time for intravenous infusions. c. Calculate solutions prepared from powders, crystals, or tablets. d. Demonstrate proficiency when computing solutions prepared from liquid solutes. e. Exhibit proficiency calculating solutions prepared from solutes with concentrations other than 100 percent concentrations.

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET2 Pharmacy and Pharmacology

Related Academic Standards

M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M8 Percents
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A5 Measurement (money, time, temperature, length, area, volume)

Workplace Skills for the 21st Century

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T3 Technology productivity tools

SUGGESTED REFERENCES

American Association of Pharmaceutical Scientists. (n.d.). Retrieved April 15, 2005, from www.aapspharmaceutica.com

Bill, R. (1997). *Pharmacology for veterinary technicians* (2nd ed.). St. Louis, MO: Mosby.

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Sandmire, D. A., & Boyce, P. F. (2004). Pairing of opposite learning styles among allied health students. *Journal of Allied Health, 33*(2), 156-163.

Course Name: Animal Restraint and Medication

Course Abbreviation: VAT 1213

Classification: Vocational-Technical Core

Description: Animal Restraint and Medication is the study and practice of restraining small animals, utilizing both chemical and physical means of safe and humane restraint. Included in the course are basic terminology, usage, administration, and general knowledge of common drugs and vaccines. (3 sch: 2 hr. lecture, 3 hr. clinical)

Prerequisite: None

Competencies and Suggested Objectives
1. Demonstrate proper techniques in restraining domestic animals. a. Demonstrate proper restraining techniques for the horse. b. Demonstrate proper restraining techniques for the cow. c. Demonstrate proper restraining techniques for the dog. d. Demonstrate proper restraining techniques for the cat. e. Demonstrate proper restraining techniques for other domestic and exotic animals.
2. Demonstrate techniques of collecting medical history data, performing a physical examination, and completing a medical record. a. Take a medical history. b. Perform a physical examination. c. Record normal body temperature, pulse, and respiration. d. Perform auscultation of lungs and heart. e. Palpate normal body structures. f. Maintain a correct medical record.
3. Use a microscope to perform a fecal examination and identify common parasite ova. a. Explain the parts of a microscope and its proper use. b. Perform a direct smear and flotation microscopic fecal examination. c. Perform a flotation fecal examination. d. Perform a gross fecal examination. e. Identify small animal and large animal common intestinal parasites and ova such as roundworms, hookworms, coccidia, tapeworms, HON's, and strongles.
4. Administer medication to both small animals and large animals. a. Perform oral administration of liquid and solid medication. b. Differentiate between various syringe and needle types and sizes. c. Demonstrate parenteral administration of medication, which includes intravenous, intramuscular, subcutaneous, intradermal, and intraperitoneal. d. Demonstrate passage of a stomach tube. e. Demonstrate other methods of administration of medication such as topical and ophthalmologic.
5. Explain vaccines, biologicals, and animal immunity to diseases. a. Differentiate biologicals such as: (1) Vaccines

(2) Toxoids (3) Antitoxins (4) Antiserums (5) Bacterins (6) Antigens b. Explain proper care and use of biologicals. c. Explain immunization schedules for domestic animals including dog, cat, horse, cow, and others. d. Explain active and passive immunity.
6. Explain special clinical procedures and bandaging techniques. a. Explain ophthalmic procedures. b. Explain ear care. c. Explain a pedicure. d. Explain anal sac expression. e. Explain an enema. f. Explain intravenous catheters. g. Explain gastric lavage. h. Explain dental prophylaxis. i. Explain centesis. j. Explain semen collection and artificial insemination. k. Explain wound management. l. Explain bandaging and splint care.
7. Demonstrate special clinical procedures and bandaging techniques. a. Demonstrate ophthalmic procedures. b. Demonstrate ear care. c. Demonstrate a pedicure. d. Demonstrate anal sac expression. e. Demonstrate an enema. f. Demonstrate intravenous catheters. g. Demonstrate gastric lavage. h. Demonstrate dental prophylaxis. i. Demonstrate centesis. j Demonstrate semen collection and artificial insemination. k. Demonstrate wound management. l. Demonstrate bandaging and splint care.
8. Explain the fundamentals of chemistry as it relates to clinical veterinary technology. a. Discuss chemical elements. b. Explain basic chemical reactions. c. Discuss chemistry as it relates to veterinary clinical pathology.

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET2 Pharmacy and Pharmacology

VET3 Nursing
VET8 Laboratory Animal Procedures
VET9 Avian, Exotic, and Fish Procedures

Related Academic Standards

M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
A5 Measurement (money, time, temperature, length, area, volume)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
L1 Usage (pronoun, tense, subject/verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

Workplace Skills for the 21st Century

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T3 Technology productivity tools

SUGGESTED REFERENCES

American Association of Pharmaceutical Scientists. (n.d.). Retrieved April 15, 2005, from www.aapspharmaceutica.com

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Sloss, M. W., Kemp, R. L., & Zajac, A. M. (1994). *Veterinary clinical parasitology* (6th ed.). Ames: Iowa State University Press.

Course Name: Animal Anatomy and Physiology

Course Abbreviation: VAT 1313

Classification: Vocational-Technical Core

Description: Animal Anatomy and Physiology introduces the student to basic anatomy and physiology as related to the needs of a Veterinary Technician. Special emphasis is given to the structure of a selected cadaver, location of specific structures, and functions of these structures. (3 sch: 2 hr. lecture, 2 hr. lab)

Prerequisites: None

Competencies and Suggested Objectives

1. Explain anatomy and physiology, cell structure, and cell physiology.
   a. Define anatomy and physiology.
   b. Define the following terms: dissection, gross anatomy, and microscopy.
   c. Explain the importance of anatomy and physiology in veterinarian practice.
   d. Using Internet technology, differentiate between the various branches of anatomy and physiology.
   e. Explain the different systems and major structures of the dog.
   f. Explain references concerning planes.
   g. Differentiate between the following descriptive terms:
      (1) Cranial
      (2) Caudal
      (3) Dorsal
      (4) Ventral
      (5) Medial
      (6) Lateral
      (7) Deep
      (8) Superficial
      (9) Palmar
      (10) Plantar
      (11) Prone
      (12) Supine
   h. Differentiate between proximal and distal in relation to structures.
   i. Discuss the general plane of the body including cavities and regions.
   j. Explain the cavities of the body and the structures associated with each.
   k. Explain each region of the body.
   l. Explain paired and unpaired structures.
   m. Differentiate between various parts of the cell.
   n. Describe the components of the cell including cell membrane, nucleus, and cytoplasm.
   o. Explain the four primary types of tissue in the body.
   p. Explain homeostasis of the body.

2. Explain the components and physiology of the skeletal system and its articulation and the muscles and their actions.
   a. Identify the bones of the canine body.
   b. Describe the composition of a long bone.
   c. Describe a Haversian canal.
   d. Explain the relationship of:
      (1) Osteocytes
      (2) Osteoblast
      (3) Osteoclast
      (4) Periosteum
      (5) Endosteum
   e. Distinguish between different types of fractures.
   f. Describe the healing forces of bones.
   g. List different functions of bone.
   h. Classify bones.
   i. Explain the following pathological conditions:
      (1) Tuberculosis
      (2) Osteomyelitis
      (3) Osteoma
      (4) Chondroma
      (5) Rickets
      (6) Osteomalacia
      (7) Achondroplasia
   j. Classify the joint as to:
      (1) Sutures
      (2) Gomphosis
      (3) Symphyses
      (4) Diarthrodial
   k. Describe the function and the structure of the synovial joints.
   l. Describe the movements of a synovial joint.
   m. Explain the pathological disorder of joints.
   n. Describe the three types of muscle by action, placement, anatomy, and physiology.
   o. Explain muscle attachments.
   p. Distinguish between different functional groups of muscles.
   q. Identify the major muscles of the canine, pectoral, cutaneous, abdominal, pelvic, and hind limbs.
   r. Explain the actions of muscles during respiration.
   s. Compare the structure of the smooth, cardiac, and skeletal muscles.
   t. Define:
      (1) Motor unit
      (2) Neurotransmitters
      (3) Hypertrophy
      (4) Synaptic cleft
   u. Describe a muscle contraction.
   v. Describe factors that influence muscle contractions.
   w. Describe the effects of medications as related to muscles.

3. Describe the anatomy and physiology of the specialized nervous system and its interrelationship with the entire body.
   a. Describe the basic origination of the nervous system including:
      (1) Neuron
      (2) Brain
      (3) Spinal cord
      (4) Nerves
   b. Identify the parts of the central and peripheral nervous system in a drawing and on the canine.
   c. Distinguish functional differences between the cerebellum, cerebrum, brain stem, and spinal cord.
   d. List the different meninges.
   e. Recognize the major cranial and spinal nerves.
   f. Distinguish between the sympathetic and the parasympathetic nervous system.
   g. Describe a nerve impulse.
   h. Explain a reflex.
   i. List ways the autonomic nervous system can maintain a relatively stable internal body environment.
   j. Describe effects of anesthetics as related to the nervous system.
4. Explain mechanics of the circulatory and respiratory system, the pathways of transport, and physiology.
   a. Describe the heart by its shape, size, covering, structure, and function of each chamber.
   b. Trace the blood through the vessels and in and out of the heart.
   c. Compare the vessels of the circulatory system:
      (1) Arteries
      (2) Veins
      (3) Capillaries
      (4) Lymphic vessels
   d. Describe the aorta and its branches.
   e. Describe the different circulatory systems of the body.
   f. Explain how the circulatory system, lymphatic system, and respiratory system interrelate.
   g. Describe a cardiac cycle.
   h. Explain where and how a pacemaker works.
   i. Explain the condition of shock.
   j. Trace air from the external environment to the erythrocytes.
   k. Distinguish between the different lobes of the lungs.
   l. Describe the actions of the alveoli.
   m. List different respiration rates of the:
      (1) Dog
      (2) Cow
      (3) Cat
      (4) Horse
5. Explain the process, function, pathway, and accessory organs of the digestive system.
   a. Describe the anatomy of the teeth.
   b. Trace food completely through the digestive system.
   c. Explain the relationship between the pharynx and mouth to larynx and esophagus during

normal respiration and swallowing.
d. Distinguish between different digestive processes in each area of the digestive tract.
e. Explain enzymes that act on food.
f. Describe how food is absorbed and used by the body.
g. Explain the relationship between the circulatory, lymphatic, and digestive systems.
h. List accessory glands of the digestive system.

6. Explain the urinary and male reproductive system.
   a. Describe the structure of the:
      (1) Kidneys
      (2) Ureters
      (3) Bladder
      (4) Urethra
   b. Explain the process of micturition.
   c. Distinguish between alkalosis and acidosis.
   d. Describe testis, epididymis, scrotum, penis, and the blood supply to the male reproductive system.
   e. Explain the secondary sex characteristics of the male and female.
   f. Describe the accessory sex glands and their effect on the body.
   g. Explain the movement of the sperm and fertilization.

7. Explain the female reproductive system.
   a. Describe the female anatomy.
   b. Explain ovulation and estrous cycle.
   c. Explain the functions of the hormones of the female reproductive system.

8. Describe the anatomy and physiology of pregnancy, parturition, mammary glands, lactation, and the endocrine system.
   a. Explain the physiology of pregnancy and parturition in domestic animals.
   b. Describe the anatomy of the mammary gland.
   c. Explain the physiology of lactation.
   d. Explain the hormones of the endocrine system.

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET3 Nursing

Related Academic Standards

R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

Workplace Skills for the 21st Century

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T5 Technology research tools

SUGGESTED REFERENCES

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Course Name: Surgical and Hospital Techniques I

Course Abbreviation: VAT 1414

Classification: Vocational-Technical Core

Description: Surgical and Hospital Techniques I is the study and practical application of sterile techniques, preparation of the surgical site, operating room conduct, assisting the surgeon, preanesthetics, anesthesiology, and anesthetic emergencies. (4 sch: 3 hr. lecture, 3 hr. clinical)

Prerequisites: None

Competencies and Suggested Objectives
1. Discuss surgical procedures, aseptic techniques, infectious organisms and their control, and surgical instruments. a. Discuss surgical procedures and their history. b. Describe the principles of asepsis including: (1) Microbial world (2) Diseases and immunity (3) Control of microbes (4) Aseptic techniques c. Identify common surgical instruments and their use.
2. Apply surgical procedures, aseptic techniques, and use of surgical instruments. a. Demonstrate surgical procedures. b. Demonstrate aseptic techniques. c. Demonstrate use and handling of surgical instruments.
3. Demonstrate surgical preparation procedures for surgical rooms, equipment, patients, and personnel. a. Apply aseptic techniques in the following areas: (1) Surgical area (2) Surgical equipment and instruments (3) Patient preparation (4) Personnel
4. Identify types of sutures and needles used in surgical procedures and the introduction into the preanesthetic period. a. Identify suture types (nonabsorbable vs. absorbable). b. Identify suture size. c. Identify needle types (size, shape, and use of). d. Identify suture patterns. e. Explain the use of preanesthetics. f. Demonstrate the use of preanesthetics.
5. Explain anesthesia, induction and monitoring techniques, endotracheal intubation, vital signs, and reflexes. a. Explain the classical stages of anesthesia. b. Explain induction techniques. c. Explain monitoring techniques.

d. Explain endotracheal intubation.
e. Explain maintenance of anesthesia.
f. Explain vital signs.
g. Explain reflexes.
h. Explain surgical positioning.
i. Explain recovery period.
j. Explain aspiration emergencies.

6. Demonstrate anesthesia administration techniques used for induction and monitoring, endotracheal intubation, vital signs, and reflexes.
   a. Demonstrate the classical stages of anesthesia administration.
   b. Demonstrate induction techniques.
   c. Demonstrate monitoring techniques.
   d. Demonstrate endotracheal intubation.
   e. Demonstrate maintenance of anesthesia.
   f. Demonstrate anesthesia administration techniques used for vital signs.
   g. Demonstrate anesthesia administration techniques used for reflexes.
   h. Demonstrate surgical positioning.
   i. Demonstrate techniques used during recovery period.
   j. Demonstrate anesthesia administration techniques used for aspiration emergencies.
7. Explain the types of anesthetic drugs.
   a. Explain anesthetic barbiturates.
   b. Explain anesthetic cycloheximines.
   c. Explain inhalation anesthetics such as:
      (1) Ether
      (2) Nitrous oxide
      (3) Chlorofluorocarbons
         (a) Halothane
         (b) Isoflurane
         (c) Methoxyflurane
   d. Explain agents used in postanesthetic period.
8. Demonstrate administration of barbiturate, cycloheximine, and inhalation anesthetic drugs.
   a. Demonstrate administering barbiturate anesthetics.
   b. Demonstrate administering cycloheximine anesthetics.
   c. Demonstrate administering inhalation anesthetics such as:
      (1) Ether
      (2) Nitrous oxide
      (3) Chlorofluorocarbons
         (a) Halothane
         (b) Isoflurane
         (c) Methoxyflurane
   d. Demonstrate administering agents used in postanesthetic period.
9. Explain types, care, and use of anesthetic equipment.
   a. Explain equipment needed for anesthesia.
   b. Identify endotracheal tubes.
   c. Explain an anesthesia machine.
   d. Explain anesthetic breathing systems.

e. Explain vaporizers.
f. Explain carrier gas flow rates.
g. Explain care of equipment.

10. Demonstrate use and care of anesthetic equipment.
    a. Demonstrate use of equipment needed for anesthesia.
    b. Demonstrate use of an anesthesia machine.
    c. Demonstrate use of anesthetic breathing systems.
    d. Demonstrate use of vaporizers.
    e. Demonstrate use of carrier gas flow rates.
    f. Demonstrate care of equipment.
11. Identify safety measures, anesthetic problems, emergencies, and special techniques involving anesthesia.
    a. Utilize workplace safety involving anesthetic gasses and other drugs.
    b. Identify anesthetic problems and emergencies including:
        (1) Human error
        (2) Equipment failure
        (3) Anesthetic agents
        (4) Patient variation factors
        (5) Response to anesthetic problems and emergencies
        (6) Potential problems in recovery
        (7) Technician's role during anesthetic problems and emergencies
    c. Explain special anesthetic techniques including:
        (1) Local analgesia
        (2) Neuromuscular blocking agents
    d. Demonstrate special anesthetic techniques including:
        (1) Local analgesia
        (2) Neuromuscular blocking agents

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET1 Office and Hospital Procedures, Client Relations, and Communication
VET4 Anesthesia
VET5 Surgical Nursing

Related Academic Standards

R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)

Workplace Skills for the 21st Century

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5 Selects, applies, and maintains/troubleshoots technology.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T2 Social, ethical, and human issues
T3 Technology productivity tools
T4 Technology communications tools
T5 Technology research tools
T6 Technology problem-solving and decision-making tools

SUGGESTED REFERENCES

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Vet med team: Your online education resource. (n.d.). Retrieved April 15, 2005, from www.vetmedteam.com

Course Name: Surgical and Hospital Techniques II

Course Abbreviation: VAT 1424

Classification: Vocational-Technical Core

Description: Surgical and Hospital Techniques II is the study and practical application of basic clinical and hospital techniques required of the veterinary technician. Subjects include pharmacology, animal nutrition, radiology, patient management and client instructions, and office procedures. (4 sch: 3 hr. lecture, 3 hr. clinical)

Prerequisites: None

Competencies and Suggested Objectives
1. Recognize drug classifications, use, and action; dosage calculation; drug laws; ordering drugs; and maintaining a drug inventory. a. Identify drug classifications. b. Discuss the use of drugs in the care of animals. c. Discuss the action of drugs. d. Describe drug laws. e. Demonstrate proper care of drugs. f. Identify drug companies and distributors. g. Demonstrate drug ordering and inventory. h. Perform dosage calculations.
2. Describe basic nutrition, feeding and care of the healthy and diseased animals, and special diets for animal consumption. a. Discuss basic nutrition for animals. b. Discuss pet foods. c. Demonstrate routine feeding and care of animals. d. Discuss special diets. e. Explain feeding and care of the diseased patient and special disorders.
3. Explain the characteristics of radiation, the production of x-rays, and the formation of a radiograph. a. Describe radiation formation. b. Discuss characteristics of radiation. c. Discuss an x-ray tube. d. Demonstrate exposure factors. e. Identify radiographic quality. f. Perform film processing. g. Develop, interpret, and apply a technique chart. h. Demonstrate patient positioning. i. Perform radiation safety measures.
4. Differentiate between known causes and predisposing factors of the most common disorders seen in small animals. a. Explain the role of the technician and provide basic knowledge of the following common system disorders:

(1) Skin
(2) Alimentary tract
(3) Cardiovascular
(4) Surgery and eye
(5) Musculoskeletal
(6) Endocrine
(7) Nervous system
(8) Respiratory
(9) Parasites
(10) Physical and chemical
(11) Reproductive system
(12) Urologic
(13) Ear

b. Explain the role of the technician and provide basic knowledge of the following common diseases:
(1) Infectious diseases
(2) Neoplastic diseases

5. Explain hospital procedures, clinical business transactions, and client relationships.
a. Complete hospital and business records properly.
b. Communicate properly to clients on the telephone.
c. Collect payment.
d. Quote fees.
e. Maintain proper client relationships.

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET1 Office and Hospital Procedures, Client Relations, and Communication
VET2 Pharmacy and Pharmacology
VET4 Anesthesia
VET5 Surgical Nursing
VET7 Imaging

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)

M6 Fractions (addition, subtraction, multiplication, division)
M8 Percents
A5 Measurement (money, time, temperature, length, area, volume)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
L1 Usage (pronoun, tense, subject/verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

Workplace Skills for the 21st Century

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5 Selects, applies, and maintains/troubleshoots technology.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T2 Social, ethical, and human issues
T3 Technology productivity tools
T4 Technology communications tools
T5 Technology research tools
T6 Technology problem-solving and decision-making tools

SUGGESTED REFERENCES

Bill, R. (1997). *Pharmacology for veterinary technicians* (2nd ed.). St. Louis, MO: Mosby.

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Vet med team: Your online education resource. (n.d.). Retrieved April 15, 2005, from www.vetmedteam.com

Course Name: Animal Parasites and Diseases

Course Abbreviation: VAT 1512

Classification: Vocational-Technical Core

Description: Animal Parasites and Diseases includes the study of etiology, symptoms, pathology, transmission, duration, prognosis, prevention, and general knowledge of common parasites and diseases of farm animals and pets. (2 sch: 2 hr. lecture)

Prerequisites: None

Competencies and Suggested Objectives
1. Explain disease terminology, cause, spread, effects, bodily defenses, and prevention. a. Define disease terminology. b. Discuss the history of disease. c. Describe classifications of diseases. d. Identify duration of diseases. e. Identify systems that disease affects. f. Discuss infectious and noninfectious causes of diseases. g. Identify classifications of microorganisms that cause disease conditions. h. Discuss transmission of diseases. i. Explain how diseases enter the body. j. Explain how the body protects itself from diseases. k. Discuss prevention of diseases. l. Discuss common disinfectants.
2. Explain small animal internal parasites. a. Describe life cycle, disease production, prevention, and control of the following small animal internal parasites: (1) Ascarids (roundworms) (2) Hookworms (Ancylostoma) (3) Whipworms (Tricharis) (4) Tapeworms (Dipylidium and Taenia) (5) Coccidia (Isospora and Taenia) (6) Heartworms (Dirofilaria immitis) (7) Giardia (8) Esophageal worm (9) Strongyloides
3. Explain external parasites of small animals, their life cycles, diseases they may cause, and control of such parasites. a. Describe life cycle, disease production, prevention, and control of the following small animal external parasites: (1) Fleas (2) Lice (3) Blowflies, screwworm flies, and flesh flies (4) Mites such as demodectic, otodectic, and sarcoptic mites

(5) Ticks

4. Explain external and internal parasites of the equine, bovine, porcine, and avian species.
   a. Describe life cycle, disease production, prevention, and control of the following large animal external and internal parasites:
      (1) Equine internal parasites such as strongyles, ascarids, pinworms, bots, and stomach worms
      (2) Equine external parasites such as house flies, horse flies, stable flies, lice, ticks, and mange mites
      (3) Bovine internal parasites such as stomach worms, tapeworms, nodular worms, hookworms, lungworms, strongyloides, liver flukes, and coccidia
      (4) Bovine external parasites such as the face fly and cattle grubs
      (5) Porcine internal parasites such as stomach worms, ascarids, and lungworms
      (6) Avian parasites
   b. Describe common anthelminics.
5. Explain common small animal viral, bacterial, fungal, and other diseases.
   a. Describe the etiology, method of spread, pathology, tests to aid in diagnosing, symptoms, prevention, and control of the following small animal diseases:
      (1) Canine viral diseases such as distemper, hepatitis, bronchitis, herpes virus, rabies, and parvo
      (2) Canine bacterial diseases such as tetanus, brucellosis, and leptospirosis
      (3) Canine mycotic diseases
      (4) Canine protozoal diseases
      (5) Canine metabolic diseases
      (6) Feline viral diseases such as distemper, rabies, rhinotracheitis, peritonitis, and leukemia
      (7) Feline bacterial diseases
      (8) Feline mycotic diseases
      (9) Feline protozoal diseases
6. Explain common viral, bacterial, mycotic, and lameness diseases of the equine species.
   a. Describe the etiology, method of spread, pathology, tests to aid in diagnosing, symptoms, prevention, and control of the following common equine diseases:
      (1) Viral diseases such as encephalomyelitis, equine infectious anemia (EIA), influenza, and viral rhinopneumonitis
      (2) Bacterial diseases such as anthrax, glanders, strangles, leptospirosis, tetanus, and navel ill
      (3) Fungal infections
      (4) Lameness
      (5) Colic
7. Explain common viral, bacterial, protozoal, and metabolic diseases of cattle and swine.
   a. Describe the etiology, method of spread, pathology, tests to aid in diagnosing, symptoms, prevention, and control of the following cattle and swine diseases:
      (1) Viral diseases such as foot and mouth diseases, vesicular stomatitis, infectious bovine rhinotracheitis (IBR), bovine viral diarrhea (BVD), bluetongue, pinkeye, and shipping fever
      (2) Bacterial diseases such as anthrax, clostridial diseases, brucellosis, lepto, tuberculosis, and mastitis

(3) Protozoal diseases such as anaplasmosis
(4) Metabolic diseases such as milk fever, grass tetany, bloat, and acetonemia
(5) Common viral swine diseases such as hog cholera, transmissible gastroenteritis (TGE), pseudorabies, swine influenza, and viral pig pneumonia (VPP)
(6) Common bacterial swine diseases such as erysipelas, leptospirosis, and pneumonia
(7) Protozoal disease such as eperythrozoonosis

8. Explain the source, symptoms, prevention, and control of common poisons that affect farm animals.
   a. Describe the source of, pathology symptoms, prevention, and control of the most common poisons of farm animals and pets to include:
      (1) Arsenic
      (2) Lead
      (3) Strychnine
      (4) Cyanide
      (5) Salt
      (6) Nitrate
      (7) Organophosphorus
      (8) Chlorinated hydrocarbons
      (9) Warfarin
      (10) Common poisonous plants

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET2 Pharmacy and Pharmacology
VET3 Nursing
VET6 Laboratory Procedures

Related Academic Standards

R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare/contrast, cause/effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Workplace Skills for the 21st Century

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5 Selects, applies, and maintains/troubleshoots technology.

WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

SUGGESTED REFERENCES

Kahn, C. M., & Line, S. (Eds.). (2005). *The Merck veterinary manual* (9th ed.). Hoboken, NJ: John Wiley and Sons.

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Course Name: Clinical Pathology

Course Abbreviation: VAT 1613

Classification: Vocational-Technical Core

Description: Clinical Pathology is the study and practical application of veterinary diagnostic aids. The course includes hematology, blood chemistries, serology, urinalysis, fecal analysis, and organ function test. (3 sch: 2 hr. lecture, 3 hr. clinical)

Prerequisites: None

Competencies and Suggested Objectives
1. Explain basic microscopy. a. Identify the types of microscopes. b. Discuss the function of microscopes. c. Identify the parts of a microscope. d. Discuss how to use a microscope. e. Discuss how to care for and maintain a microscope.
2. Demonstrate how to perform a fecal analysis, identify common parasite ova, identify common external parasites, and perform skin tests. a. Perform a fecal analysis. b. Identify common parasite ova. c. Identify common external parasites. d. Discuss the diagnostic aids to help identify common external parasites. e. Perform a skin scraping. f. Discuss other skin diagnostic tests.
3. Perform a complete urinalysis. a. Take a correct history regarding urinary problems in animals. b. Discuss the normal function of the urinary system. c. Perform a physical exam of urine. d. Perform a chemical exam of urine. e. Perform a microscopic exam of urine.
4. Perform blood chemistry exams to evaluate the function of the liver, kidney, pancreas, thyroid, and other body organs, and serology tests. a. Collect blood samples for specific tests. b. Perform blood or body fluid chemistry tests to evaluate the following: (1) Kidney function (2) Liver function (3) Pancreatic function (4) Thyroid function (5) Cardiovascular function (6) Cerebrospinal fluid exam (7) Serology (a) Occult heart test (b) Feline leukemia test

(c) Parvo test (d) Others (8) Exudate vs. transudate
5. Explain blood formation, blood composition, and the physiology of blood. a. Explain the formation of blood, blood composition, and blood physiology which includes: (1) Body tissues that produce blood (2) How blood is produced (3) Composition of blood (4) Function of blood (5) Normal destruction of blood
6. Explain the clotting process of blood and tests to evaluate blood clotting in animals. a. Explain how blood clots and diagnostic tests are used to evaluate the blood clotting procedure. (1) Factors required for blood clotting (2) Blood cells required for blood clotting (3) The physiology of blood clotting (4) The common causes of blood not clotting (5) Bleeding time test (6) Coagulation time test (7) Platelet count (8) Anticoagulants for specimen collection: (a) EDTA (b) Oxalates (c) Heparin (d) Others
7. Explain a CBC (complete blood count) and how to perform each test. a. Explain a CBC, the normal CBC values for common domestic animals, and how to perform each test including: (1) Hemoglobin concentration (2) Pack Cell Volume (hematocrit) (3) Red Blood Cell count (4) White Blood Cell count (5) Red Blood Cell indices (6) Differential blood count
8. Discuss pathological or abnormal blood conditions. a. Recognize pathological blood conditions including: (1) Red blood cell abnormalities (2) White blood cell abnormalities (3) Blood parasites such as heartworms, haemobartonella, and anaplasmosis

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET6 Laboratory Procedures

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare/contrast, cause/effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Workplace Skills for the 21st Century

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5 Selects, applies, and maintains/troubleshoots technology.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T3 Technology productivity tools

SUGGESTED REFERENCES

Kahn, C. M., & Line, S. (Eds.). (2005). *The Merck veterinary manual* (9th ed.). Hoboken, NJ: John Wiley and Sons.

McCurnin, D. M., & Bassert, J. M. (Eds.). (2001). *Clinical textbook for veterinary technicians* (5th ed.). Philadelphia: W. B. Saunders.

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Course Name: Preceptorship

Course Abbreviation: VAT 2184

Classification: Vocational-Technical Core

Description: The Animal Health Technician student is required to complete a four week preceptorship with an approved Mississippi veterinarian practice or laboratory animal facility. This internship provides hands-on experience in a small animal, mixed animal, large animal, or laboratory animal facility. (4 sch: 12 hr. clinical)

Prerequisites: Successful completion of two years of course work

Competencies and Suggested Objectives

1. Apply practical skills and technical information while in a supervised professional work setting.
   a. Apply the scholastic knowledge acquired to practical applications in a veterinary practice.
   b. Perform duties as assigned by the veterinarian.
   c. Cooperate with the supervising veterinarian.
   d. Arrive at work on time and willingly work the assigned days and hours.
   e. Appear for work appropriately dressed.
   f. Perform duties in a timely manner.
   g. Cooperate with other employees.
   h. Perform new duties and new techniques as they arise.
   i. Demonstrate initiative.
   j. Notify the veterinarian of unexpected absences or tardiness as soon as possible.
   k. Use knowledge base to the best of ability when required to do so.
   l. Treat all clients in a courteous manner.
   m. Ask for assistance and guidance if unsure about duties, laboratory tests, or other activities.
   n. Treat the veterinarian with respect at all times.
   o. Keep all client information confidential.
   p. Give the veterinarian honest, accurate information at all times.

STANDARDS

American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List

VET1 Office and Hospital Procedures, Client Relations, and Communication
VET2 Pharmacy and Pharmacology
VET3 Nursing
VET4 Anesthesia
VET5 Surgical Nursing
VET6 Laboratory Procedures
VET7 Imaging

VET8 Laboratory Animal Procedures
VET9 Avian, Exotic, and Fish Procedures

Related Academic Standards

R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M8 Percents
A3 Data Interpretation (graph, table, chart, diagram)
A5 Measurement (money, time, temperature, length, area, volume)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
L1 Usage (pronoun, tense, subject/verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

Workplace Skills for the 21st Century

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.
WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.
WP5 Selects, applies, and maintains/troubleshoots technology.
WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.
WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.
WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

National Educational Technology Standards for Students

T1 Basic operations and concepts
T3 Technology productivity tools

SUGGESTED REFERENCES

The American Veterinary Medical Association. (n.d.). Retrieved April 15, 2005, from www.avma.org

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Plumb, D. C. (2002). *Veterinary drug handbook* (4th ed.). Ames, IA: Blackwell.

College of Veterinary Medicine (CVM) Courses

Course Name: Clinical Elective

Course Abbreviation: VAT 2151

Classification: CVM Course

Description: The student will participate in an additional rotation of the student's choice.

Prerequisites: Successful completion of all first year courses

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Business Procedures

Course Abbreviation: VAT 2161

Classification: CVM Course

Description: The educational goals of this course relate primarily to understanding and practicing proper hospital procedures and improving communication skills in actual hospital situations. Emphasis will be placed on developing professionalism and efficiency.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Laboratory Animal Care

Course Abbreviation: VAT 2171

Classification: CVM Course

Description: The Veterinary Technician student will be instructed in the care and handling of laboratory animals. Maintenance of health laboratory animals to include proper nutrition, husbandry, and handling will be emphasized.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Necropsy

Course Abbreviation: VAT 2181

Classification: CVM Course

Description: The student will rotate through the Necropsy Service of the Diagnostic Laboratory under the direct supervision of a faculty pathologist.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Pharmacy

Course Abbreviation: VAT 2191

Classification: CVM Course

Description: The student will be instructed in basic knowledge of various aspects of pharmacy. This will include the area pharmacokinetics, proper handling of Controlled Substances, and dosage calculation.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: LARAC

Course Abbreviation: VAT 2173

Classification: CVM Course

Description: The Veterinary Technician student will rotate through the Laboratory Animal Unit of the College of Veterinary Medicine. Maintenance of health laboratory animals to include proper nutrition, husbandry, and handling will be emphasized.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Community Practice

Course Abbreviation: VAT 2213

Classification: CVM Course

Description: This rotation will require active participation in the management of small animal cases, aspects of the practice environment, and the delivery of health maintenance programs associated with a small animal clinical service.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Internal Medicine-ICU

Course Abbreviation: VAT 2223

Classification: CVM Course

Description: The student will rotate through the Small Animal Unit of the Animal Health Center under the direct supervision of internal medicine faculty. The student will participate in the receiving, analysis, and management of patients referred for medical or surgical care. The student will also be instructed in the area of Intensive Care Unit.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Equine Services

Course Abbreviation: VAT 2233

Classification: CVM Course

Description: The student will rotate through Equine Units of the Large Animal Clinic under the direct supervision of large animal clinical faculty. The student will participate in the receiving, analysis, and management of equine patients referred for medical or surgical care.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Food Animal

Course Abbreviation: VAT 2243

Classification: CVM Course

Description: The student will rotate through the Field Services Unit of the Animal Health Center under the direct supervision of large animal clinical faculty. The student will participate in problem analysis, case management, and development of health maintenance programs for populations of animals.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Small Animal Surgery

Course Abbreviation: VAT 2253

Classification: CVM Course

Description: The student will rotate through the Small Animal Surgery Unit of the Animal Health Center under the direct supervision of surgical faculty and will participate in all aspects of patient preparation, patient management, operating room setup, and surgical equipment and supply preparation.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Anesthesia

Course Abbreviation: VAT 2263

Classification: CVM Course

Description: The student will rotate through the Anesthesia Services of the Animal Health Center under the direct supervision of faculty in anesthesia. Responsibilities include preoperative evaluation of patients, selection of appropriate anesthetic protocols, induction of anesthesia, maintenance of anesthesia, monitoring of anesthesia, anesthetic recovery of patients, and post-operative management.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Radiology

Course Abbreviation: VAT 2273

Classification: CVM Course

Description: The student will rotate through the Radiology Services of the Animal Health Center under the direct supervision of faculty radiologists. Responsibilities include positioning animals for radiographs. The student is also responsible for participation in ultrasound diagnostic and radiotherapy procedures.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Course Name: Clinical Pathology

Course Abbreviation: VAT 2283

Classification: CVM Course

Description: The student will rotate through the Diagnostic Laboratory of the Animal Health Center under the direct supervision of the Diagnostic Services faculty. Responsibilities include collection of laboratory samples, conducting laboratory analysis in clinical pathology, parasitology, and bacteriology.

Prerequisites: Successful completion of all first year courses.

Competencies and Suggested Objectives:

See Course Syllabi for Veterinary Technology from the College of Veterinary Medicine at Mississippi State University.

Recommended Tools and Equipment

CAPITALIZED EQUIPMENT

1. X-ray machine (animal), with attachments (1 per program)
2. Dental unit with accessories (1 per program)
3. Anesthesia machine, Drager (2 per program)
4. Anesthesia machine, Scavinger (2 per program)
5. Operating table, V-top (1 per program)
6. Autoclave, large (1 per program)
7. Microscope with dual head (1 per program)
8. Microscope, binocular (1 per 2 students)
9. Cage unit S/S assembly 8' (1 per program)
10. Electrosurgical unit (1 per program)
11. Dental scaler (1 per program)
12. Cardiac respiratory monitor (1 per program)
13. Chemistry analyzer (1 per program)
14. Hematology (CBC) analyzer (1 per program)
15. Vaporizer, isoflurane (3 per program)
16. Vaporizer, halothane (1 per program)
17. Blood pressure monitor (3 per program)

NON-CAPITALIZED EQUIPMENT

1. Sink, stainless steel (minimum 1 per program)
2. Sterilizer, autoclave (1 per program)
3. Centrifuge, table-top (1 per program)
4. Exam and weigh table (1 per program)
5. Mobile cages with feed pans (2 per program)
6. Ophthalmo/otoscope (1 per program)
7. Skeleton, horse fore limb (1 per program)
8. Skeleton, horse hind limb (1 per program)
9. Skeleton, dog (5 per program)
10. Scales, baby (1 per program)
11. Scales, table (1 per program)
12. Differential counters (5 per program)
13. Hemacytometer (1 per student)
14. Oxygen (2 tanks per program)
15. X-ray processing equipment (1 per program)
16. X-ray cassette container (6 per program)
17. X-ray film viewer (2 per program)
18. Surgical instruments, assorted set (1 set per operating room)
19. Surgical lights (1 per program)
20. Mayo stand (1 per program)
21. Operating table (2 per program)
22. Tub table/scrub table (1 per program)

23. Anatomical models, various organs (6 of each model per program)

RECOMMENDED INSTRUCTIONAL AIDS

1. Instructor desk (1 per program)
2. Instructor chair (1 per program)
3. TV monitor, color, 27" or larger (1 per program)
4. LCD Projector (1 per program)
5. AV screen (1 per program)
6. VCR or DVD player (1 per program)

Student Competency Profile for Veterinary Technology

Student:_____

This record is intended to serve as a method of noting student achievement of the competencies in each unit. Noted in parentheses beside each unit is the cluster competency from the MS-CPAS. This form may be duplicated for each student and serve as a cumulative record of competencies achieved in the course.

As an alternative to the use of this form, you may note competency achievement by attaching a report showing comparable results for each student. Please indicate that you are using this alternative report by checking here. _____

Veterinary Math Calculations (VAT 1111)

_____1. Demonstrate the numeration systems, fractions, decimals, percentages, and ratio-proportion problems.
_____2. Differentiate among the metric, apothecaries', and household systems and their units of measure.
_____3. Calculate oral and parenteral dosages.
_____4. Calculate intravenous solution rates and the preparation of solutions.

Animal Restraint and Medication (VAT 1213)

_____1. Demonstrate proper techniques in restraining domestic animals.
_____2. Demonstrate techniques of collecting medical history data, performing a physical examination, and completing a medical record.
_____3. Use a microscope to perform a fecal examination and identify common parasite ova.
_____4. Administer medication to both small animals and large animals.
_____5. Explain vaccines, biologicals, and animal immunity to diseases.
_____6. Explain special clinical procedures and bandaging techniques.
_____7. Demonstrate special clinical procedures and bandaging techniques.
_____8. Explain the fundamentals of chemistry as it relates to clinical veterinary technology.

Animal Anatomy and Physiology (VAT 1313)

_____1. Explain anatomy and physiology, cell structure, and cell physiology.
_____2. Explain the components and physiology of the skeletal system and its articulation and the muscles and their actions.
_____3. Describe the anatomy and physiology of the specialized nervous system and its interrelationship with the entire body.
_____4. Explain mechanics of the circulatory and respiratory system, the pathways of transport, and physiology.
_____5. Explain the process, function, pathway, and accessory organs of the digestive system.
_____6. Explain the urinary and male reproductive system.
_____7. Explain the female reproductive system.

_____8. Describe the anatomy and physiology of pregnancy, parturition, mammary glands, lactation, and the endocrine system.

Surgical and Hospital Techniques I (VAT 1414)

_____1. Discuss surgical procedures, aseptic techniques, infectious organisms and their control, and surgical instruments.
_____2. Apply surgical procedures, aseptic techniques, and use of surgical instruments.
_____3. Demonstrate surgical preparation procedures for surgical rooms, equipment, patients, and personnel.
_____4. Identify types of sutures and needles used in surgical procedures and the introduction into the preanesthetic period.
_____5. Explain anesthesia, induction and monitoring techniques, endotracheal intubation, vital signs, and reflexes.
_____6. Demonstrate anesthesia administration techniques used for induction and monitoring, endotracheal intubation, vital signs, and reflexes.
_____7. Explain the types of anesthetic drugs.
_____8. Demonstrate administration of barbiturate, cycloheximine, and inhalation anesthetic drugs.
_____9. Explain types, care, and use of anesthetic equipment.
_____10. Demonstrate use and care of anesthetic equipment.
_____11. Identify safety measures, anesthetic problems, emergencies, and special techniques involving anesthesia.

Surgical and Hospital Techniques II (VAT 1424)

_____1. Recognize drug classifications, use, and action; dosage calculation; drug laws; ordering drugs; and maintaining a drug inventory.
_____2. Describe basic nutrition, feeding and care of the healthy and diseased animals, and special diets for animal consumption.
_____3. Explain the characteristics of radiation, the production of x-rays, and the formation of a radiograph.
_____4. Differentiate between known causes and predisposing factors of the most common disorders seen in small animals.
_____5. Explain hospital procedures, clinical business transactions, and client relationships.

Animal Parasites and Diseases (VAT 1512)

_____1. Explain disease terminology, cause, spread, effects, bodily defenses, and prevention.
_____2. Explain small animal internal parasites.
_____3. Explain external parasites of small animals, their life cycles, diseases they may cause, and control of such parasites.
_____4. Explain external and internal parasites of the equine, bovine, porcine, and avian species.
_____5. Explain common small animal viral, bacterial, fungal, and other diseases.

_____6. Explain common viral, bacterial, mycotic, and lameness diseases of the equine species.
_____7. Explain common viral, bacterial, protozoal, and metabolic diseases of cattle and swine.
_____8. Explain the source, symptoms, prevention, and control of common poisons that affect farm animals.

Clinical Pathology (VAT 1613)

_____1. Explain basic microscopy.
_____2. Demonstrate how to perform a fecal analysis, identify common parasite ova, identify common external parasites, and perform skin tests.
_____3. Perform a complete urinalysis.
_____4. Perform blood chemistry exams to evaluate the function of the liver, kidney, pancreas, thyroid, and other body organs, and serology tests.
_____5. Explain blood formation, blood composition, and the physiology of blood.
_____6. Explain the clotting process of blood and tests to evaluate blood clotting in animals.
_____7. Explain a CBC (complete blood count) and how to perform each test.
_____8. Discuss pathological or abnormal blood conditions.

Preceptorship (VAT 2184)

_____1. Apply practical skills and technical information while in a supervised professional work setting.

Appendix A: American Veterinary Medical Association Committee on Veterinary Technician Education and Activities Skills List [1]

VET1 Office and Hospital Procedures, Client Relations, and Communication
VET2 Pharmacy and Pharmacology
VET3 Nursing
VET4 Anesthesia
VET5 Surgical Nursing
VET6 Laboratory Procedures
VET7 Imaging
VET8 Laboratory Animal Procedures
VET9 Avian, Exotic, and Fish Procedures

[1] American Veterinary Medicine Association. (2004). *Accreditation policies and procedures of the AVMA Committee on Veterinary Technician Education and Activities (CVTEA).* Schaumburg, IL: Author.

Appendix B: Related Academic Standards[2]

Reading
R1 Interpret Graphic Information (forms, maps, reference sources)
R2 Words in Context (same and opposite meaning)
R3 Recall Information (details, sequence)
R4 Construct Meaning (main idea, summary/paraphrase, compare/contrast, cause/effect)
R5 Evaluate/Extend Meaning (fact/opinion, predict outcomes, point of view)

Mathematics Computation
M1 Addition of Whole Numbers (no regrouping, regrouping)
M2 Subtraction of Whole Numbers (no regrouping, regrouping)
M3 Multiplication of Whole Numbers (no regrouping, regrouping)
M4 Division of Whole Numbers (no remainder, remainder)
M5 Decimals (addition, subtraction, multiplication, division)
M6 Fractions (addition, subtraction, multiplication, division)
M7 Integers (addition, subtraction, multiplication, division)
M8 Percents
M9 Algebraic Operations

Applied Mathematics
A1 Numeration (ordering, place value, scientific notation)
A2 Number Theory (ratio, proportion)
A3 Data Interpretation (graph, table, chart, diagram)
A4 Pre-Algebra and Algebra (equations, inequality)
A5 Measurement (money, time, temperature, length, area, volume)
A6 Geometry (angles, Pythagorean theory)
A7 Computation in Context (whole numbers, decimals, fractions, algebraic operations)
A8 Estimation (rounding, estimation)

Language
L1 Usage (pronoun, tense, subject/verb agreement, adjective, adverb)
L2 Sentence Formation (fragments, run-on, clarity)
L3 Paragraph Development (topic sentence, supporting sentence, sequence)
L4 Capitalization (proper noun, titles)
L5 Punctuation (comma, semicolon)
L6 Writing Conventions (quotation marks, apostrophe, parts of a letter)

Spelling
S1 Vowel (short, long)
S2 Consonant (variant spelling, silent letter)
S3 Structural Unit (root, suffix)

[2] CTB/McGraw-Hill LLC. (1994). *Tests of adult basic education, Forms 7 and 8.* Monterey, CA: Author.

Appendix C: Workplace Skills for the 21st Century[3]

WP1 Allocates resources (time, money, materials and facilities, and human resources).

WP2 Acquires, evaluates, organizes and maintains, and interprets/communicates information, including the use of computers.

WP3 Practices interpersonal skills related to careers including team member participation, teaching other people, serving clients/customers, exercising leadership, negotiation, and working with culturally diverse.

WP4 Applies systems concept including basic understanding, monitoring and correction system performance, and designing and improving systems.

WP5 Selects, applies, and maintains/troubleshoots technology.

WP6 Employs thinking skills including creative thinking, decision making, problem solving, reasoning, and knowing how to learn.

WP7 Basic Skills: Employs basic academic skills including reading, writing, arithmetic and mathematics, speaking, and listening.

WP8 Personal Qualities: Practices work ethics related to individual responsibility, integrity, honesty, and personal management.

[3] *Secretary's commission on achieving necessary skills*. (1991). Retrieved July 13, 2004, from http://wdr.doleta.gov/SCANS/

Appendix D: National Educational Technology Standards for Students[4]

T1 Basic operations and concepts
- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

T2 Social, ethical, and human issues
- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

T3 Technology productivity tools
- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

T4 Technology communications tools
- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

T5 Technology research tools
- Students use technology to locate, evaluate, and collect information from a variety of sources.
- Students use technology tools to process data and report results.
- Students evaluate and select new information resources and technological innovations based on the appropriateness for specific Skills.

T6 Technology problem-solving and decision-making tools
- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

[4] *ISTE: National educational technology standards (NETS).* (2000). Retrieved July 13, 2004, from http://cnets.iste.org/