CAPS Veterinary Medicine

UNIT 1: Comparative Anatomy and Physiology of Animals

ESSENTIAL QUESTION	BIG IDEAS
How do variations in anatomical structures and physiological processes indicate forms and functions across different animals?	● **Functional Morphology and Comparative Physiology:** Comparative anatomy and physiology allow students to examine the relationships between form and function across different animal taxa. ● **Clinical Relevance and Veterinary Practice:** Integrating comparative anatomy and physiology with clinical applications is essential for veterinary students.

GUIDING QUESTIONS

- Content

    - How do comparative anatomical structures across different animal taxa reflect adaptations to ecological niches and evolutionary history?

    - What physiological mechanisms underlie the diverse strategies employed by animals to meet common biological challenges?

- Process

    - What strategies and techniques are employed in comparative anatomical research to study anatomical variation and functional morphology?

    - What role does functional morphology play in understanding the significance of care and treatment in animal health?

- Reflective

    - How does understanding the intricate interplay between anatomical structures and physiological processes deepen our appreciation for the complexity and resilience of the animal body?

Animal Science Course No. 18101

BENCHMARK 1: ANIMAL ORIGIN
Competencies

#	DESCRIPTION
1.1	Identify the origin, significance, distribution and domestication of animal species.
1.2	Define major components of the animal industry.

BENCHMARK 2: CLASSIFY ANIMALS
Competencies

#	DESCRIPTION
2.1	Explain the importance of the binomial system of nomenclature.
2.2	Identify major animal species by common and scientific names.

BENCHMARK 3: COMPARATIVE ANATOMY & PHYSIOLOGY
Competencies

#	DESCRIPTION
3.1	Identify basic characteristics of animal cells, tissues, organs and body systems.
3.2	Diagram a typical animal cell and identify the organelles.
3.3	Describe the basic functions of animal cells in growth and reproduction.
3.4	Describe the properties, locations, functions and types of animal tissues.
3.5	Describe the properties, locations, functions and types of animal organs.
3.6	Describe the functions of the animal body systems and system components.

BENCHMARK 4:   SELECTING ANIMALS
Competencies

#	DESCRIPTION
4.1	Identify ways an animal's health can be affected by anatomical and physiological disorders.
4.2	Create a program to develop an animal to its highest potential performance.

BENCHMARK 9: MALE & FEMALE REPRODUCTIVE SYSTEMS
Competencies

#	DESCRIPTION
9.1	Explain the male and female reproductive organs of the major animal species.

BENCHMARK 10: BREEDING READINESS & SOUNDNESS
Competencies

#	DESCRIPTION
10.1	Explain how age, size, life cycle, maturity level and health status affect the reproductive efficiency of male and female animals.
10.2	Discuss the importance of efficient and economic reproduction in animals.

BENCHMARK 11: SCIENTIFIC PRINCIPLES IN BREEDING
Competencies

#	DESCRIPTION
11.1	Explain genetic inheritance in agricultural animals.
11.2	Define natural and artificial breeding methods.
11.3	Explain the use of quantitative breeding values (e.g., EPDs) in the selection of genetically superior breeding stock.
11.4	Explain the advantages of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer.
11.5	Discuss the uses and advantages and disadvantages of natural breeding and artificial insemination.

KEY LEARNING EXPERIENCES

- Guided instruction on naming schemes of anatomical structures.
- Hands-on observation and dissection sessions allowing students to explore the anatomical structures of different animal species, comparing similarities and differences in organ systems.
- Guided tours provide opportunities to observe various animal species in their natural or agricultural habitats, understanding their physiological adaptations to different environments.
- Students conduct research projects comparing the physiological mechanisms of specific bodily functions across different animal species, presenting their findings to the class.
- Veterinary professionals share insights through guest lectures on topics of comparative anatomy and physiology of animals based on their clinical experiences, discussing common health issues and treatment approaches.

CAPS Veterinary Medicine

UNIT 2: Physical Examination and Diagnosis of Animals

ESSENTIAL QUESTION	BIG IDEAS
How can we effectively assess the health and well-being of animals through comprehensive physical examinations and diagnostic procedures?	**Comprehensive Evaluation of Animal Health**: Focus on the importance of conducting thorough physical examinations to assess the overall health and well-being of animals. **Signs and Symptoms Analysis**: Utilization of charting in SOAP format. **Interpretation of Clinical Signs and Symptoms**: Students learn to recognize normal variations and distinguish abnormal findings indicative of underlying medical conditions. **Diagnostic Decision-Making and Problem-Solving**:Students learn to apply critical thinking skills and clinical reasoning to integrate findings from physical examinations, medical history, and diagnostic tests to formulate accurate diagnoses.

GUIDING QUESTIONS

- Content

    - What are the key components of a comprehensive physical examination in veterinary medicine, and how do they contribute to assessing the health status of animals?

    - How do we interpret clinical signs and symptoms observed during physical examinations, and what implications do they have for diagnostic decision-making?

    - What diagnostic tools and procedures are available for further evaluation and confirmation of diagnoses in veterinary medicine, and how do we select appropriate diagnostic tests based on clinical findings?

    - What are the industry charting and recording formats, such as SOAP, to scientifically and systematically diagnose and create treatment plans.

- Process

    - How can students develop effective communication skills to obtain relevant medical

history and information from animal owners or caretakers during the examination process?

- What systematic approach can students use to conduct a methodical physical examination, ensuring thorough evaluation of all body systems and accurate identification of abnormalities?

- Reflective

  - How does the process of conducting physical examinations and making diagnostic decisions impact the welfare and treatment outcomes of animal patient?

FOCUS STANDARDS

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BENCHMARK 5:   PREVENTION & TREATMENT OF ANIMALS
Competencies

#	DESCRIPTION
5.1	Explain methods of determining animal health and disorders.
5.2	Identify common diseases, parasites and physiological disorders that affect animals.
5.3	Explain characteristics of causative agents and vectors of diseases and disorders in animals.
5.4	Explain the clinical significance of common considerations in veterinary treatments, such as aseptic techniques.
5.5	Identify and describe zoonotic diseases.

BENCHMARK 12: ANIMAL PRODUCT SAFETY
Competencies

#	DESCRIPTION
12.1	Discuss the dangers involved in working with animals.
12.2	Explain the implications of animal welfare and animal rights for animal agriculture.

BENCHMARK 13: ANIMAL PRODUCT SAFETY
Competencies

#	DESCRIPTION
13.1	Identify animal production practices that could pose health risks or are considered to pose risks by some.
13.2	Describe how animal identification systems can track an animal's location, nutrition requirements, production progress and changes in health.

- Students shadow veterinarians during physical examinations of animals in veterinary clinics or hospitals, observing diagnostic procedures and patient interactions.
- Analysis of real-life case studies involving animal patients, focusing on the diagnostic process, differential diagnoses, and treatment options.
- Hands-on workshops teaching students how to perform physical examinations, diagnostic tests and interpret findings.
- Simulation exercises where students take on the roles of veterinarians and pet owners, practicing communication skills and decision-making in diagnosing and treating animal patients.
- Scenario simulations where students work in teams to determine diagnosis and treatment plans.
- Laboratory sessions where students learn to analyze blood samples, urine samples, and other diagnostic specimens to detect abnormalities and diseases.
- Collaborative team presentations on case scenarios and outcomes.

CAPS Veterinary Medicine

UNIT 3: Practical Experience : (Handling and Care of Animals)

ESSENTIAL QUESTION	BIG IDEAS
How can we ensure the safety, welfare, and well-being of animals through effective handling, husbandry, and management practices?	• **Safe and Effective Animal Handling Techniques:** proper restraint techniques, body language interpretation, and stress reduction strategies to minimize the risk of injury to both animals and handlers. • **Comprehensive Animal Husbandry and Management Practices:** importance of providing appropriate housing, nutrition, sanitation, and environmental enrichment to meet the physical, behavioral, and social needs of animals. • **Ethical and Welfare Considerations in Animal Care:** ethical and welfare considerations inherent in caring for animals in veterinary medicine.

GUIDING QUESTIONS

- Content

    - What are the fundamental principles of safe and effective animal handling, and how do they vary across species and contexts?

    - What are the key components of animal husbandry and management practices necessary for ensuring optimal health and welfare?

    - How do ethical considerations and welfare concerns influence decision-making in animal care practices?

    - What is the difference in animal welfare and animal rights?

- Process

    - What strategies and protocols can students implement to ensure the safety, comfort, and well-being of animals during handling and care procedures?

    - How can students develop effective communication and interpersonal skills to

facilitate positive interactions with both animal patients and their owners or caretakers?

- Reflective

    - How can students critically reflect on their own attitudes, behaviors, and practices to continually improve their approach to handling and caring for animals?

FOCUS STANDARDS

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BENCHMARK 14: DESIGN ANIMAL FACILITIES
Competencies

#	DESCRIPTION
14.1	Identify facilities needed to house and produce each animal species safely and efficiently.
14.2	Identify equipment and handling facilities used in modern animal production.

BENCHMARK 17: ENVIRONMENT CONDITIONS ON ANIMALS
Competencies

#	DESCRIPTION
17.1	Identify optimal environmental conditions for animals.

KEY LEARNING EXPERIENCES

- Hands-on workshops teaching students safe and effective techniques for handling and restraining different animal species, emphasizing stress reduction and humane treatment.
- Practical experiences allowing students to assist veterinary professionals in routine animal care tasks, such as feeding, grooming, and administering medications.
- Students observe animal behavior in various settings, learning to recognize signs of stress, aggression, or illness, and how to respond appropriately.
- Training sessions on maintaining clean and sanitary animal care facilities, including proper cleaning protocols, waste management, and infection control measures.
- Practical care of animals in a farm setting utilizing local community connections.
- Ethical scenario discussions and collaborative study.
- Study of food animal care and regulatory considerations.

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UNIT 4: Professional Skills Development through Career Exploration

ESSENTIAL QUESTION	BIG IDEAS
What are key professional skills needed to prepare future professionals in a career they are exploring?	**Holistic Skill Development:** Prioritize a diverse set of skills beyond technical expertise and including an entrepreneurial mindset. **Experiential Learning:** Hands-on experiences, internships, apprenticeships, and project-based learning opportunities provide career exploration opportunities. **Mentorship and Networking:** Facilitate mentorship programs and networking events to connect young professionals with experienced individuals in their field.

GUIDING QUESTIONS

Content

- What are effective communication strategies and tools used in specific professions?
- Why are critical thinking, problem-solving and adaptability important?
- How can professional skill development bridge the gap between theoretical knowledge and practical application and enhance understanding of future career opportunities?
- How can mentors offer guidance, advice, and valuable insight most effectively?

Process

- How can students learn about their current strengths and opportunities for development?
- How can experiential learning opportunities holistically create opportunities to practice professional skills?

Reflective

- How does professional skill development foster lifelong learning and development?
- How can students transfer skills to post secondary and future careers?

FOCUS STANDARDS

CTE Professionalism Standards

1.1   Act as a responsible and contributing citizen and employee.

1.2   Apply appropriate academic and technical skills.

1.4   Communicate clearly, effectively and with reason.

1.5   Consider the environmental,social and economic impacts of decisions.

1.6   Demonstrate creativity and innovation.

1.7   Employ valid and reliable research strategies.

1.8   Utilize critical thinking to make sense of problems and persevere in solving them.

1.9   Model integrity, ethical leadership and effective management.

1.10   Plan education and career path aligned to personal goals.

1.11   Use technology to enhance productivity.

1.12   Work productively in teams while using cultural/global competence.

CAPS Professional Profile

Skills: Communication, Collaboration, Time Management, Conflict Resolution, Critical Thinking, Interpersonal Relationship, Creativity, Leadership

Attributes: Adaptability, Curiosity, Self-awareness, Drive, Confidence, Enthusiasm, Resourcefulness, Integrity, Empathy

Actions: Networking, Interviewing, Goal Setting, Professional Manner

KEY LEARNING EXPERIENCES

- Experiential learning opportunities such as project presentations, apprenticeships, client projects and internships.
- Interview opportunities with community members.
- Mentorship events where students are connected to professionals in their chosen careers.
- Development of digital portfolios and resume building that are industry standard and can grow with students.