

YOSEMITE REGIONAL OCCUPATIONAL PROGRAM

VETERINARY SCIENCE OCCUPATIONS

CBEDS Code: 4021

<u>JOB TITLES</u>	<u>DOT NO.</u>
Veterinarian, Laboratory Animal Care	073.101-010
Veterinarian Anatomist	073.061-014
Veterinary Microbiologist	073.061-018
Veterinary Epidemiologist	073.061-022
Veterinary Parasitologist	073.061-026
Veterinary Pathologist	073.061-030
Veterinary Pharmacologist	073.061-034
Veterinary Physiologist	073.061-038
Veterinarian	073.101-010.
Veterinarian, Poultry	073.101-014
Zoo Veterinarian	073.101-018
Veterinarian Livestock Inspector	073.161-010
Veterinarian Virus-Serum Inspector	073.261-010
Veterinary Meat Inspector	073.264-010

Course Description:

This course is designed to prepare students for post secondary education and entry-level employment in the veterinarian industry. Students will research and perform laboratory exercises on the anatomy and physiology of several domestic animal species. Students will differentiate the nutritional needs of different species in different stages of life. Students will recognize the symptoms of common infectious diseases and discuss treatment and prevention plans. Students will explain the significance of surgery. Students will be able to identify routes of drug administration, read and follow directions on drug labels, and prepare proper dosages. Students will learn the requirements to become a registered animal health professional and a licensed veterinarian in California, as well as the general working conditions, personal qualifications, and job requirements. Students will demonstrate communication and leadership abilities through participation in FFA.

PREREQUISITES: Algebra 1 and Biology/Ag Biology

DURATION: 2 Semesters/180 total hours

CREDIT: 10 units

MEETS GRADUATION REQUIREMENTS IN: Elective

REQUIRED FOR GRADUATION: No

SCHOOLS OFFERED: Orestimba High School

MEETS UNIVERSITY OF CALIFORNIA ENTRANCE REQUIREMENTS: In progress MEETS CALIFORNIA STATE

UNIVERSITY REQUIREMENTS: In progress ARTICULATED WITH POSTSECONDARY INSTITUTIONS: In progress

INSTRUCTIONAL MATERIALS:

Textbook:

1. Introduction to Veterinary Science, Lawhead and Baker
Thomson Delmar Learning 2003
ISBN 076683302X

Resource materials:

1. Veterinary Science Library Pack
Thomson Delmar Learning 2003
ISBN 1401868215

Instructional Content

Instruction will include:

Student Outcomes

At the end of instruction, the student will be able to:

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Laboratory Research Activities		CTE	Anchor/CR	CL	CC
Safety and Regulations Laboratory Skills Research and data collection procedures Medical terminology	1. Investigate current animal research and investigation 2. Present data 3. Summarize and form conclusions of data	D2.1 D9.4 D3.1 D6.3 C5.4	A2, A4, A6, A11 CR4.1, CR4.3, CR4.5, CR4.6, CR6.3, CR6.6, CR2.5, CR11.1, CR11.5	20	5
Anatomy and Physiology Cells of the animal body Cell make up, structure, and function Mitosis and cancer Mammalian reproduction Tissue Types and Functions Bone structure, growth, and remodeling Joint types and movements Axial and appendicular skeletons	4. Explain the molecular makeup of cells. 5. Identify the basic structures of the cell and their function. 6. Discuss mitosis and its clinical significance in diseases. 7. Detail meiosis in mammalian reproduction. 8. Describe the properties, locations, function, & varieties of epithelial tissues, connective tissues, muscle and nerve tissues. 9. Describe the functions of the musculo- skeletal system. 10. Detail the structure of the bone; name the joint types and their accompanying role in movement. 11. List the two major sections of the skeleton, name the corresponding bones, and compare species differentiation. 12. Explain how bone grows and remodels, relate bone and muscle groups to movement.	D3.1 C6.0 C6.1 C7.3 D4.0 D5.3 C7.5 C7.4 C6.2 C5.1 C5.2 C5.4	A1, A5, A10, A11, A6 CR1.0, CR5.1, CR5.4, CR6.3, CR10.1, CR10.3, CR10.4, CR10.5, CR10.6, CR10.7, CR11.1, CR11.2, CR11.3, CR11.4, CR11.5	45	10

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Circulatory System	13. List blood components and explain the functions of blood.	CTE	ANCHOR/CR	CL	CC
Blood components and functions Mammalian heart structures Blood vessels and blood flow Electrocardiograms, heart sounds, and blood pressure	14. Identify the basic structures of the mammalian heart; trace the flow blood through the heart and body of while detailing the parts of the blood vessels and the structural significance.	C6.2 C4.3 D3.1 D6.1 D6.3 D6.4 D6.5 D6.7	A1, A6, A6, A7 CR1.0, CR5.3, CR5.4, CR6.2, CR6.3, CR6.5 CR6.7, CR7.4, CR7.7		
Respiratory System Respiratory tract Mechanisms of breathing	16. Identify the basic components of the respiratory tract; list and discuss the function and control of breathing.	C6.2 C9.2 C9.3 C9.4			
Renal system structure and functions Kidney structure and urine formation and regulation Urine and blood evaluation	17. Identify and name the basic structures in the renal system; name and explain the functions of the renal system.	D3.1 D6.1 D6.2			
	18. Identify structures within the kidney and detail the formation of urine and its regulation.	D6.3 D6.4 D6.5 D6.6			
Digestive system structures Monogastric and ruminant digestion	19. Evaluate urine and blood as a measure of the health of the animal and the urinary system.	D6.7			
	20. Identify the basic structures of the digestive system; explain digestion in monogastrics and ruminants, including digestive tract function, absorption and the role of the liver in digestion and metabolism.				

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Male and female anatomy and hormonal function Pregnancy and parturition Central Nervous System Neuron function	21. Compare and contrast the specialization of dentition and digestive tracts. 22. Identify male anatomy and relate associated hormonal function. Discuss female anatomy & the estrous cycle; list the steps in establishing pregnancy and identify the stages of parturition. 23. Describe the neuron, nerve impulses, and the synapse; explain the components of a reflex arc. 24. Identify the major structures of the brain. 25. Discuss the anatomy and function of the spinal cord. 26. Compare and contrast the function of the sensory somatic system to the autonomic nervous system and differentiate between the two branches of the autonomic system.	C8.2			
Endocrine system and function Antigens and immunity	27. Describe the endocrine system; name the major endocrine glands, list the hormones secreted by each gland, and describe the function of these hormones. 28. Define the term antigen and explain its significance in immunity; distinguish between passive and active immunity.	C6.2 C1.7 C5.4 D3.1 D6.2, D6.4 D6.1, D6.3	A1, A6 CR1.0, CR6.3, CR6.5, CR6.6		
Nutrition Basic nutrients Species comparison Animal nutrition Pet food labels Equine nutrition and fiber digestion	29. List the six major components of animal diets, and discuss their structure and significance in nutrition. 30. Explain the general principles in animal nutrition.	C8.1, C8.2, C8.3, C9.3 D2.4, D2.2, D2.3, D11.2, D10.1, D10.2 D10.4, D10.6, D10.7 D11.2, D11.5	A1, A6, A10, A11 CR1.0, CR6.4, CR6.6, CR10.2, CR10.R, CR10.6, CR10.7, CR11.2, CR11.5	10	2

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Ruminant nutrition and fiber digestion.	31. Discuss the difference between dogs, cats, bovine, and equine nutrition.	CTE			
Infectious Diseases					
Principles of infectious disease	32. Describe Koch's postulates.	C1.4, C9.1 C9.2, C9.3 C9.4, C9.5	A1, A6, A2, A10, A11 A8 CR1.0, CR11.1, CR11.2, CR10.1, CR10.4, CR10.6		
Koch's postulates	33. List the important distinguishing features and give example of major disease agents and discuss resulting diseases.	D1.1, D1.2 D1.3, D1.4 D6.1-D6.7 D9.1, D9.2 D11.2	CR10.7, CR8.2, CR8.3, CR8.4, CR6.2, CR6.3 CR6.6, CR2.2, CR2.4, CR2.3, CR2.5		
Disease prevention	34. Name the basic components of disease prevention.			20	5
Vaccines	35. Describe the types of vaccines available and their roles in disease prevention.				
Classification of disease	36. Classify diseases, match them with the domestic species in which they occur, and discuss their clinical significance.				
Parasites (internal and external) Viral diseases	37. List and describe several diseases common in domestic animals that are contagious to humans.				
Bacterial diseases	38. List the major methods used to diagnose disease and cite examples of disease diagnosis with each testing method.				
Fungal diseases					
Protozoa					
Zoonotic					
Diagnosis of disease					
Principles of Surgery					
Laceration healing	39. Explain the clinical significance of the basic principles of successful surgery.	C6.2, C6.1, D1.3, D9.1 D9.3	A1, A2, A5 CR1.0, CR2.3, CR2.2, CR2.5, CR5.2, CR5.4	5	2
Surgical considerations	40. Explain the healing of lacerations.				
Pharmacology					
Classification and chemistry of common drugs	41. Define the terms related to general pharmacology.	D6.1 D6.2 D9.1 D9.3	A1, A6, A2, A10 CR1.0, CR2.4, CR2.5, CR6.2, CR6.3, CR6.6 CR6.7	10	2
	42. Explain the five schedules of controlled substances and their common use.				

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<p>Determine amount and correctly measure prescribed medication using medical math, calculation, and conversions</p> <p>Drug laws, dispensing and record keeping</p>	<p>43. Become familiar with pharmacological agents, their uses, adverse side effects, and dosage form.</p> <p>43. Identify the parts of drug labels and inserts.</p> <p>45. List routes and describe methods of drug administration and routes of drug excretion.</p> <p>46. Define biotransformation and list common chemical reactions involved in this process.</p>		<p>CR10.2, CR10.4, CR10.5, CR10.6, CR10.7</p>		
<p>Genetics Theory of Classification and Taxonomy Animal Kingdom - Vertebrates and Invertebrates Genetic diseases and disorders Current issues and ethics</p>	<p>47. Debate the pro and con of genetically engineered animals for food, conservation, and domestic pets.</p> <p>48. Describe the theory of classification of the animal kingdom.</p> <p>49. List common genetic diseases and disorders.</p>	<p>C7.1, C7.2, C7.3, C7.4, C7.5 C6.0, C6.1, C6.2 D3.1, D3.2 D3.3, D5.4, D5.5</p>	<p>A4, A1, A5, A8, A6 CR1.0, CR4.2, CR4.3, CR4.5, CR4.7, CR5.1, CR5.2, CR5.4, CR6.2, CR6.3</p>	<p>10</p>	<p>1</p>
<p>Professional Opportunities</p> <p>College education and career planning Professional growth Work ethics and employability skills Resume writing Interview techniques Developing a professional portfolio</p> <p>Understand the importance of maintain and completing the California Agricultural Record Book Interpret and explain the aims, purposes, history and structure of FFA student organization and know opportunities it makes available Manage and actively engage in a career related supervised agricultural experience</p>	<p>50. List the requirements to become a registered animal health professional in California.</p> <p>51. Outline the steps to acquiring a veterinary license in California.</p> <p>52. Explain what work ethics are and give examples of their importance in the animal health profession.</p> <p>53. Create a professional portfolio and demonstrate its use in the interview process for college or work.</p>		<p>A3, A9, A11, A4 CR11.2, CR11.5, CR9.1, CR9.2, CR9.3, CR9.4, CR9.6, CR9.8, CR9.10, CR9.11, CR9.12 CR9.13, CR4.2, CR4.3, CR4.7, CR3.1 – CR3.9</p>	<p>10</p>	<p>2</p>

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Agricultural Interpersonal Skills and Leadership Development		CTE	Anchor/CR	CL	CC
	54. Completion of a Supervised Agricultural Experience Program and Record Book.	A6.3 A1.4	A9, A4, A5, A2 CR2.4, CR2.5, CR4.2, CR4.3, CR5.1, CR5.2, CR5.4, CR9.2, CR9.3, CR9.7, CR9.8, CR9.9, CR9.10, CR9.13		
	55. Development of listening, speaking, writing and reading skill activities.			10	10
	56. Participation in critical thinking and group team building activities				
	57. Perform speaking and seminar presentations				

