

**American College of Veterinary Internal Medicine (ACVIM)
Nutrition Specialty Exam
Test Specifications**

A. Nutritional Biochemistry and Requirements

20%

1. Distinguish nutrients by their classification, metabolism, interactions, essentiality and safety boundaries
 - a. Protein and amino acids (including nitrogen balance)
 - b. Carbohydrates (including fiber)
 - c. Lipids and fatty acids (including ketogenesis)
 - d. Vitamins and vitamin-like compounds
 - e. Minerals
 - f. Water
2. Explain energy and energetics including measurement methods
 - a. Energy systems (gross, digestible, metabolizable, net)
 - b. Animal-specific: Indirect vs. direct calorimetry
 - c. Energy metabolism, substrate utilization
 - d. Food-specific: Bomb calorimetry, metabolizable estimations, Atwater factors (standard vs. modified)
3. Describe nutritional aspects of acid-base regulation
 - a. Base excess, dietary cation vs. anion difference
 - b. Alkalinizing and acidifying compounds and their metabolic/clinical implications
 - c. Interaction of fluids and nutrition with acid-base status
4. Evaluate the comparative aspects of nutritional biochemistry and requirements
 - a. Species-specific differences in metabolism
 - b. Allometric considerations and cross-species variability in requirements
 - c. Species-specific storage, transport, and activation of vitamins and minerals
5. Describe the derivation and application of nutritional requirements
 - a. Minimal vs. adequate intake vs. recommended allowance vs. safe upper limits
 - b. Allometric and life-stage-specific requirements
 - c. Derivation of requirements using NRC/AAFCO concepts and formulation implications
 - d. Protein quality assessment

B. Nutritional Physiology and Pathophysiology

15%

1. Compare and contrast the normal physiology across species and organ systems
2. Describe nutrient-gene interactions
 - a. Epigenetics and nutrigenomics concepts
 - b. Breed- and species-specific gene-nutrient interactions
 - c. Interaction of dietary components with gene expression
3. Describe the impact of animal signalment on nutritional physiology and pathophysiology
 - a. Life stage-specific physiology
 - b. Species-specific differences
 - c. Breed-specific differences
 - d. Sex and neuter status
4. Describe the pathophysiology of diet-induced and nutrient-sensitive diseases across species and organ systems
 - a. Impact of disease on nutrient and energy metabolism
 - b. Nutrients of concern for disease states
5. Describe the regulation of appetite and control of food intake

a. Central and peripheral appetite signaling and effect of hormones on appetite	
b. External factors influencing feeding behavior (e.g., palatability, stress, owner, environment)	
6. Describe the underlying pathophysiology of specific alterations in body composition	
a. Cachexia, sarcopenia, obesity	
b. Simple vs. stressed starvation	
c. Refeeding syndrome risk and electrolyte shifts	
7. Identify nutrient-drug associations in health and disease	
8. Explain the role of nutritional factors in immune function, wound healing, and infection risk	
C. Assessment of Individual/Group	15%
1. Recognize signalment- and activity-related nutritional considerations	
2. Develop a diagnostic plan	
3. Interpret clinical findings associated with diet-induced or nutrient-responsive conditions	
a. Diagnostics	
b. Methods for assessing body composition	
4. Identify candidates for assisted nutritional support	
5. Evaluate nutritional status and considerations for diseases/conditions	
D. Dietary Assessment and Feeding Practice	18%
1. Obtain accurate and complete diet/ration history	
2. Calculate energy, dry matter, and nutrient intake	
3. Assess adequacy of energy, dry matter, and nutrient intake relative to individual/group requirements	
4. Evaluate non-nutritive feed additives, supplements, and growth promotants	
5. Assess nutritional implications of food/feed forms	
6. Assess nutritional implications of environmental and husbandry factors	
7. Develop a plan to sample and analyze food/feed/water	
8. Interpret the results of food/feed/water laboratory and computer analyses	
a. Company-provided information	
b. Nutritional value of ingredients and effect of processing	
c. Food/feed analytical methods and their limitations	
9. Describe the implications of specific feeding management	
10. Assess economic considerations of food/feed forms	
11. Recognize food/feed and environmental exposure risks	
E. Develop a Nutritional Plan for the Individual/Group	18%
1. Prioritize the problem list and differential diagnoses	
2. Establish nutritional and management targets for diet/ration	
3. Formulate a diet/ration plan to meet identified targets	
4. Establish a monitoring program for individual/group	
5. Apply methods to manage animals with altered appetites	
a. Pharmacologic strategies	
b. Presentation and environment	
6. Manage assisted enteral nutrition feeding plans	
a. Feeding route	
b. Feeding plan	
c. Complication management	
7. Manage parenteral nutrition feeding plans	

a. Administration route	
b. Formulation and administration plan	
c. Complication management	
8. Communicate the feeding plan to relevant parties	
a. Strategies to optimize the implementation of and adherence to nutritional recommendations	
b. Techniques for addressing misconceptions	
F. Food/Feed and Supplement Production, Safety, Regulation, and Research Methods	14%
1. Evaluate food/feed manufacturing practices	
a. Processing effects on nutrient stability	
b. Quality control	
c. Food safety	
d. Risk assessment for feed contaminants	
e. Preservation, transport and storage	
f. Recall process	
2. Evaluate the procurement and quality of ingredients	
a. Bioavailability and digestibility	
b. Storage/handling techniques	
c. Soil quality, testing, and soil-nutrient interactions	
3. Interpret food/feed labeling information	
a. Regulatory requirements and terms	
b. Labeling claims and validation	
c. Conversion between as fed, dry matter, and energy basis	
4. Evaluate the validity of nutrition information sources	
5. Critique study design and scientific merit of nutrition research	
6. Interpret animal feeding trials (e.g., nutritional adequacy, digestibility, palatability, metabolizable energy)	
7. Evaluate nutritive and non-nutritive feed additives and supplements	
a. Regulatory oversight	
b. Evidence-based evaluation of supplements	
c. Potential nutrient or drug interactions	