VETERINARY  VM
MEDICINE

College of Veterinary Medicine

101 Veterinary Medicine in Society
   Spring. 1(0-0) 
   Role of the veterinary profession in animal and human health. Impact of veterinary medicine on society.

110 Veterinary Medical Terminology
   Spring, Fall. 3(2-0) P: VM 110 concurrently.
   Veterinary medical terminology, focusing on fundamental recognition, interpretation and usage of medical terms.

120 Veterinary Comparative Nutrition
   Spring. 2(2-0) P: Approval of college.
   Energy metabolism, nutrients and nutrient requirements of common domestic species.

130 Comparative Anatomy for Veterinary Technicians
   Fall. 2(1-2) P: Completion of Tier I Writing Requirement and (BS 161 and BS 171) or LB 145.
   Gross anatomy of the common animal species encountered in veterinary medicine. Overview of the functional anatomy of the musculoskeletal, digestive, cardiovascular, cutaneous, respiratory, urogenital, nervous, and endocrine systems and the special senses.

140 Pharmacology for Veterinary Technicians
   Fall. 2(2-0) P: MTH 103 or MTH 110 or MTH 116 or MTH 124 or MTH 132 R: Approval of college.
   Fundamentals of characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations.

150 Hospital Procedures and Communication
   Fall. 2(2-0) R: Approval of college. C: VM 110 concurrently and VM 140 concurrently.
   Development of various modalities of professional and client communication skills.

155 Veterinary Technology Careers and Professional Development
   Spring. 1(0-1) R: Approval of college.
   Career options in veterinary technology, discussion of professional, ethical and legal considerations. Portfolio development, resume and cover-letter writing skills.

160 Small Animal Nursing Skills
   Spring. 3(2-3) P: VM 110 and VM 130 and VM 140 and VM 150
   Small animal nursing including principles of restraint, physical examination, medical management techniques, and behavior of common companion animals. Recognition of common canine and feline breeds.

165 Large Animal and Laboratory Animal Nursing Care Techniques
   Fall. 2(1-2) P: VM 160 and VM 205
   Fundamentals of the handling of equine, food animal and laboratory animal species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species.

170 Hematology and Immunology for Veterinary Technicians
   Spring. 2(2-0) P: VM 250 and VM 110 C: VM 175 concurrently.
   Structure and function of normal blood cells, cellular and humoral immunity, mechanisms of hemostasis, blood group serology, transfusion medicine and vaccinology.

175 Clinical Pathology Laboratory I for Veterinary Technicians
   Spring. 1(0-2) P: VM 110 and VM 250 C: VM 170 concurrently.
   Veterinary clinical pathology laboratory including diagnostic procedures in hematology, serology and ELISA methodology.

176 Clinical Pathology Laboratory II for Veterinary Technicians
   Fall. 1(0-2) P: VM 175
   Comprehensive veterinary clinical pathology laboratory, including diagnostic procedures in urology, dermatology, cytology, and advanced methods in hematology.

205 Preventive Animal Health Care for Veterinary Technicians
   Spring. 3(3-0) P: VM 150 and VM 110
   Development of husbandry techniques to enhance wellness and reduce the risk of disease, injury and stress in common domestic and exotic animals.

210 Surgical Nursing for Veterinary Technicians
   Fall. 2(1-1) P: VM 160 and VM 130 and VM 250 R: Approval of department. C: VM 215 concurrently and VM 303 concurrently.
   Role of the veterinary technician as a member of the veterinary surgical team.

215 Surgical Nursing and Anesthetic Management Laboratory
   Fall. 1(0-4) P: VM 160 and VM 130 and VM 250 C: VM 210 concurrently and VM 303 concurrently.
   Principles and techniques in veterinary surgical nursing and anesthesia.

245 Parasitology for Veterinary Technicians
   Spring. 2(1-2) P: VM 140 and VM 176 and VM 205 R3: VM 250
   Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control.

250 Veterinary Comparative Clinical Physiology
   Fall. 4(4-0) P: ((Completion of Tier I Writing Requirement) and (BS 161 and BS 171)) or LB 145.

255 Small Animal Diseases and Management
   Fall. 3(3-0) P: VM 160 and VM 170 and VM 250 and VM 175
   Pathophysiology, transmission, diagnostic process, clinical management and prevention of canine and feline diseases.

265 Dentistry Techniques for Veterinary Technicians
   Spring. 1(0-4) P: VM 215 and VM 210 and VM 303
   Veterinary dental techniques and oral cavity assessment for companion animals.

270 Advanced Skills Development for Veterinary Technicians
   Spring. 1(0-3) P: VM 210 and VM 215 and VM 303
   Service-oriented approach to health care development in an operational animal care facility.

275 Large Animal Diseases and Management
   Spring. 3(3-0) P: VM 165 and VM 250
   Diseases, husbandry, preventative health care and client education for equine and food animal species.

285 Clinical Nutrition for Veterinary Technologists
   Fall. 1(1-0) P: VM 255 and VM 120
   Nutritional assessment and management of common domestic species in veterinary medicine.

290 Special Studies in Veterinary Medicine
   Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of college.
   Faculty-directed individual study on an experimental, theoretical or applied problem. May involve a supervised off-campus experience.

295 Biomedical Research and Regulatory Issues for Veterinary Technologists
   Fall. 1(1-0) P: VM 150 and VM 205
   Principles and techniques of biomedical research, governance and regulation of animal care and use.

303 Anesthesiology for Veterinary Technicians
   Fall. 2(1-1) P: VM 140 and VM 160 and VM 130 and VM 250 R: Approval of department. C: VM 215 concurrently and VM 210 concurrently.

304 Radiology for Veterinary Technicians
   Spring. 2(2-0) P: VM 110 and VM 130
   Production of radiographs, components of the x-ray machine, use of screens and grids, handling film, imaging quality, film processing, patient positioning, and radiation safety.

305 Hospital Practice Management for Veterinary Technologists
   Spring. 2(2-0) P: VM 150
   Veterinary practice economics, personnel management, inventory control and marketing techniques.

337 Introduction to Foodborne Pathogens
   Fall, Summer. 3(3-0) R: Open to graduate students in the Food Safety Major or approval of department.
   Microbial classification, growth, genetics, epidemiology, transmission and ecology of major food and waterborne pathogens including bacteria, viruses, parasites, prions and protozoa.

369 Introduction to Zoo and Aquarium Science
   Spring. 3(3-0) Interdepartmental with Fisheries and Wildlife and Integrative Biology and Landscape Architecture. Administered by Integrative Biology. P: BS 162 or LB 144 or BS 152H SA: ZOL 369
   Fundamentals of zoo and aquarium operations including research, interpretation, design, nutrition, captive breeding, conservation, ethics and management.
Veterinary Medicine—VM

410 Veterinary Technology Clerkship in Anesthesiology
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in anesthesiology.

411 Veterinary Technology Clerkship in Radiology
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in radiology.

412 Veterinary Technology Clerkship in Companion Animal Medicine
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in companion animals.

413 Veterinary Technology Clerkship in Companion Animal Surgery
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 245 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in surgical nursing.

414 Veterinary Technology Clerkship in Equine Medicine and Surgery
Fall, Spring, Summer. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in equine medicine and surgery.

415 Veterinary Technician Clerkship in Food Animal and Equine Medicine
Fall, Spring, Summer. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in food animal and equine medicine.

416 Veterinary Technology Clerkship in Critical Care
Fall, Spring, Summer. 3 credits. P: VM 412 RB: (VM 410 and VM 411 and VM 413) and Completion of preclinical coursework.
Application of principles and techniques in critical care.

417 Veterinary Technology Clerkship in Companion Animal Oncology
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 413 RB: Completion of preclinical coursework.
Application of principles and techniques in companion animal oncology.

418 Veterinary Technology Clerkship in Food Animal Physical Rehabilitation
Fall, Spring, Summer. 3 credits. P: VM 270 RB: Completion of preclinical coursework.
Application of principles and techniques in food animal physical rehabilitation, particularly those animals recovering from orthopedic and neurologic injuries and surgeries.

419 Veterinary Technology Clerkship in Companion Animal Diagnostic Ultrasound
Fall, Spring, Summer. 3 credits. P: VM 411 RB: Completion of preclinical coursework.
Application of principles and techniques of diagnostic ultrasound.

420 Veterinary Technology Clerkship in Large Animal Anesthesia
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 303 and VM 304 RB: Completion of preclinical coursework. SA: VM 460, VM 472
Application of principles and techniques of food animal and equine anesthesia.

421 Veterinary Technology Clerkship in Food Animal Medicine
Fall, Spring, Summer. 3 to 6 credits. P: VM 270 and VM 275 and VM 304 RB: Completion of preclinical coursework.
Application of principles and techniques in food animal medicine.

422 Veterinary Technology Clerkship in Clinical Pathology
Fall, Spring, Summer. 3 credits. P: VM 270 and VM 275 and VM 303 and VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in clinical pathology.

423 Veterinary Technology Clerkship in Necropsy
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: VM 270 and VM 275 and VM 303 and VM 304 and VM 245 RB: (VM 410 and VM 482) and Completion of preclinical coursework.
Application of principles and techniques in biomedical research involving laboratory animals.

424 Veterinary Technology Clerkship in Zoo and Wildlife Medicine
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: VM 270 and VM 275 and VM 303 and VM 304 and VM 245 RB: (VM 410) or Completion of preclinical coursework.
Application of principles and techniques in zoo and wildlife medicine.

425 Veterinary Technology Clerkship in Clinical Parasitology
Fall, Spring, Summer. 3 credits. P: VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in clinical parasitology.

426 Veterinary Technology Clerkship in Dermatology
Fall, Spring, Summer. 3 credits. P: VM 412 RB: Completion of preclinical coursework.
Application of principles and techniques in dermatology.

427 Veterinary Technology Clerkship in Special Problems
Fall, Spring, Summer. 3 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P: VM 270 and VM 275 and VM 303 and VM 304 and VM 245 RB: Completion of preclinical coursework.
Application of principles and techniques in experimental, therapeutic, or laboratory medicine.

511 Clinical Competencies I
Fall. 2(1-2) R: Open to graduate-professional students in the College of Veterinary Medicine.
Introduction to history taking, physical examination, and techniques associated with examination of various species.

512 Clinical Competencies II
Spring. 1(0-2) R: Open to graduate-professional students in the College of Veterinary Medicine.
Identifying and communicating ethical challenges and animal welfare issues in the veterinary profession.

513 Ethical and Animal Welfare Issues in the Veterinary Profession
Fall. 2(1-2) R: Open to graduate-professional students in the College of Veterinary Medicine.

524 Basic Science in Clinical Medicine
Spring. 1(0-2) R: Open to graduate-professional students in the College of Veterinary Medicine.
Integration of information learned in basic science courses by application to clinical cases.

532 Veterinary Integrative Problem Solving
Fall. 2(1-2) RB: Completion of Year 1 in the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.
Integration of subject material from concurrent and previous courses using a problem-based learning format.
541 Veterinary Career Development and Practice Management
Spring, 2(2-0) R: Open to graduate-professional students in the College of Veterinary Medicine.
Foundations of career development and practice management skills.

533 Veterinary Epidemiology
Fall, 3(3-0) RB: Completion of Year 1 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Basic epidemiologic theory and study design. Veterinary descriptive and inferential biostatistics. Production veterinary medicine.

555 Neurological and Ophthalmological Diseases
Fall, 3(3-0) RB: Completion of Year 2 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Neurological and ophthalmological diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

549 Applied Diagnostic Imaging
Fall, 1(0-2) RB: Completion of Year 1 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Radiographic interpretation. Recognition of abnormalities. Development of verbal skills in image interpretation. Alternate imaging modalities.

553 Theriogenology and Urological Diseases
Fall, 5(4-2) RB: Completion of Year 2 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Urogenital diseases of domestic animals. Pathogenesis, diagnosis, and treatment.

544 Veterinary Public Health
Fall, 2(2-0) RB: Completion of Year 1 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Veterinary environmental, occupational, and public health. Milk and meat hygiene. Control of zoonotic diseases.

554 Hematological, Oncological and Dermatological Diseases
Fall, 3(3-0) RB: Completion of Year 2 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Hematological, oncological and dermatological diseases of domestic animals. Pathogenesis, clinical presentation, diagnosis, and treatment.

541 Veterinary Career Development and Practice Management
Spring, 2(2-0) R: Open to graduate-professional students in the College of Veterinary Medicine.
Foundations of career development and practice management skills.

542 Professional Management
Fall, 3(3-0) RB: Completion of Year 2 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. Development of leadership, business and interpersonal skills, career planning, and goal setting.

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815  Applied Project in Food Safety  
Fall, Spring, Summer. 3 credits. P: VM 810 or approval of college. R: Open to master's students in the Food Safety major or approval of college.
Faculty directed student project.

817  Pre-Harvest Food Safety  
Spring. 3 credits. RB: Enrollment in graduate program in related field. R: Open to master's students in the Food Safety Major or approval of college.
Principles for improvement of pre-harvest food safety. Emphasis on microbial, chemical, and toxic hazards. Strategies to reduce pre-harvest risks in many food production species.

820  Current Topics in Comparative Medicine and Integrative Biology  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Enrollment in graduate-professional program or graduate program in the biomedical sciences. R: Open to graduate students in the College of Veterinary Medicine. Topics in comparative medicine using recently published literature to illustrate concepts.

821  Food Protection and Defense  
Fall. 3 credits. Interdepartmental with Criminal Justice. Administered by Veterinary Medicine. R: Open to graduate students in the College of Veterinary Medicine or in the Food Safety major or in the Veterinary Medicine major or in the Criminal Justice major or approval of college.
Food systems and criminal justice approaches to prepare for and solve issues relating to food safety and defense.

823  International Veterinary Medicine  
Spring. 3(3-0) RB: Professional or graduate status with knowledge of animal production or animal health. R: Open to master's students or graduate-professional students or lifelong graduate students in the College of Veterinary Medicine or in the Food Safety major or in the Large Animal Clinical Sciences major. Approval of college.
Global burden of animal and zoonotic diseases. Regulations for animal health and animal trade internationally. Comparative approaches for animal health management.

824  Global Food Safety  
Fall. 3(3-0) RB: Professional or graduate status with knowledge of food safety. R: Open to graduate students in the Food Safety major or approval of college.
Understanding food safety challenges in different geographic regions. Development of interventions for food safety in a global context.

825  Quantifying Food Risk  
Fall. 3(3-0) RB: Professional or graduate status with knowledge of food safety. R: Open to master's students or graduate-professional students in the College of Veterinary Medicine or in the School of Criminal Justice or in the School of Packaging or in the Food Safety major or approval of college.
Food risks based on quality, safety, fraud and intentional threats.

826  Creating a Food Safety Culture  
Summer of odd years. 3(3-0) RB: Professional or graduate status with knowledge of food safety. R: Open to graduate students in the Food Safety Major or approval of college.
Explores proven, evidence-based ways to change or strengthen the food safety culture of an organization and influence employee behavior.

827  Food Safety Modernization Act and Hazard Analysis and Critical Control Point Systems  
Spring. 3(3-0) RB: Professional or graduate status with knowledge of food safety. R: Open to graduate students in the Food Safety Major or approval of college.
Food safety requirements for food establishments subject to the Food Safety Modernization Act. Food safety management systems, with a focus on the Hazard Analysis and Critical Control Points (HACCP) Approach.

830  Food Safety Research Methods  
Fall, Summer. 3(3-0) R: Open to graduate students in the College of Veterinary Medicine or approval of college.
Conducting and interpreting food safety research. Interpretation and critique of the literature, study design, and communication of food safety research.

831  Foodborne Disease Epidemiology for the Professional  
Fall, Summer. 3(3-0) R: Open to master's students in the Food Safety major or approval of college.
Applied foodborne disease investigation through the use of case studies.

834  Current Issues in Food Safety  
Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to graduate students in the College of Veterinary Medicine or in the Food Safety Major or approval of department.
Current issues in food safety including: allergen control in the manufacturing setting, microbial control in the manufacturing setting, good manufacturing practices, ingredient safety, preventative control, produce food safety. Other topics as needed.

835  Food Safety for Produce  
Spring. 3(3-0) R: Open to graduate students in the Food Safety Major or approval of department.
Overview of food safety requirements for the produce sector with a focus on Good Agriculture Practices (GAPs).

840  Anti-Counterfeit Strategy and Product Protection  
Summer. 3(3-0) Interdepartmental with Criminal Justice and Packaging. Administered by Veterinary Medicine. R: Open to graduate students in the School of Criminal Justice or in the School of Packaging or in the Food Safety major or approval of department.
Theory and applied techniques for anti-counterfeit strategies and product protection for food and consumer products.

899  Master's Thesis Research  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 18 credits in all enrollments for this course.
Master's thesis research.