ACVIM American College of Veterinary Internal Medicine | ADVANCED CONTINUING EDUCATION

Large Animal Candidate Boot Camp
November 5-8, 2026
New Bolton Center, University of Pennsylvania

Sponsored by

Boehringer Ingelheim

DAY 1 Thursday, November 5, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
7:00 am	**Shuttle to New Bolton Center, Kennett Square PA**	
7:15-7:45 am	**Registration**	
7:45-8:00 am	**Welcome & Introductions**	*Dr. Rose Nolen-Walston*
8:00-8:30 am	**Lecture 1: Cardiology I -** Standard echocardiogram views and standards • Understand principles behind acquisition of standard core echocardiographic views in large animals • Be able to identify cardiac structures on standard core echocardiographic views • Learn the M-mode, 2D, and Doppler echocardiographic measurements that should be obtained in a standard examination.	*Dr. Claire Underwood*
8:40-9:45	**Lecture 2: Cardiology II -** Diagnosis and treatment of large animal cardiac disease • Recognize and describe the clinical findings associated with congestive heart failure (CHF) in horses and formulate an initial diagnostic and treatment approach. • Identify and triage arrhythmogenic emergencies in horses • Describe the basic pharmacology, indications of commonly used equine cardiovascular drugs, including furosemide, torsemide, enalapril, digoxin, lidocaine, magnesium sulfate, metoprolol, and sotalol.	*Dr. Cristobal Navas de Solis*
9:45-10:00 am	**Break**	
10:00-10:50 am	**Lecture 3: Ophthalmology I -** Corneal Disease • To learn the stepwise process of an equine ophthalmology examination. • To describe and understand common corneal pathology. • To understand how and why we perform common equine ophthalmology diagnostics	*Dr. Caroline Monk*

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DAY 1 (Continued) Thursday, November 5, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
10:55-11:45 am	**Lecture 4: Ophthalmology II -** Equine Recurrent Uveitis • The clinical signs seen with Equine Recurrent Uveitis versus traumatic uveitis. • Medical and surgical treatment options for Equine Recurrent Uveitis. • Common sequelae to monitor for secondary to Equine Recurrent Uveitis.	*Dr. Caroline Monk*
11:45-12:45 pm	**Lunch – "When hoofbeats are zebras…"**	*Dr. Rose Nolen-Walston*
1:00-5:30 pm (Break 3:00-3:30 pm)	**Labs – 1 hour per rotation** **Lab 1: Cardio I -** Standard echo views • Obtain and identify the six standard echocardiographic views from the right parasternal window. • Participants will review the required preparation and the technical steps to obtain the six standard echocardiographic views from the right parasternal window. **Lab 2: Cardio II -** Doppler and left atrium/side views • Obtain and identify three standard echocardiographic views from the left parasternal window. • Apply color-flow Doppler to assess the presence and size of valvular regurgitant jets and/or intracardiac shunts. • Apply continuous-wave Doppler to assess the velocity and severity of valvular regurgitation and intracardiac shunts. **Lab 3: Ophthalmology I -** Basic and Advanced Large Animal Ophthalmologic Examination • To confidently perform a complete ophthalmic examination. • Capable of applying and assessing fluorescein stain and tonometry. • Perform a complete ocular ultrasound **Lab 4: Small Ruminant Ultrasound Examination** • To gain proficiency in the use of point-of-care ultrasound for evaluation of the small ruminant abdomen • To gain familiarity with the normal position and appearance of ruminant gastrointestinal structures	*Lab 1: Dr. Katherine Chope* *Lab 2: Dr. Cristobal Navas de Solis* *Lab 3: Dr. Caroline Monk* *Lab 4: Dr. Mary Jane Drake*
5:45 pm	**Shuttle to hotel**	

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DAY 2 Friday, November 6, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
7:30 am	**Shuttle to New Bolton Center, Kennett Square PA**	
8:00-8:50 am	**Lecture 5: Neurology - Myelogram** • Describe equipment and technical skills required to perform myelography • Interpret myelogram images using appropriate criteria for the diagnosis of spinal cord compression • Identify the most common complications associated with myelography and how to address them	*Dr. Amy Johnson*
8:55-9:45 am	**Lecture 6: Neurology/Myopathy - Performance** • Differentiate neurologic gait deficits from orthopedic lameness using findings from the history, physical examination, and dynamic gait assessment. • Recognize gait patterns and examination findings characteristic of neurologic disease, musculoskeletal disease, and concurrent neurologic and orthopedic disorders. • Develop a systematic diagnostic approach for horses with ambiguous gait abnormalities, including the appropriate use and interpretation of diagnostic analgesia, neurologic testing, and advanced imaging.	*Dr. Kara Brown and Dr. Sarah Colmer*
9:45-10:00 am	**Break**	
10:00-10:50 am	**Lecture 7: Endocrine/Laminitis** • Recognize the radiographic appearance of acute and chronic laminitis • Perform radiographic measurements relevant to the diagnosis of laminitis on plain radiographs • Formulate and interpret diagnostic testing plans for endocrine disease relevant to laminitis risk and laminitis management • Formulate a rational treatment plan for acute laminitis	*Dr. Andrew van Eps*

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DAY 2 (Continued) Friday, November 6, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
10:55-11:45 am	**Lecture 8: Liver/Hepatitis** • Be able to list the common causes of liver disease in horses • Be able to develop a comprehensive diagnostic plan for horses with liver disease • Be able to interpret signalment, history and diagnostic results to develop a working diagnosis • Generate a treatment plan based on working diagnosis or top differentials	*Dr. Joy Tomlinson*
11:45-12:45 pm	**Lunch –** Leadership	*Dr. Sarah Reuss*
12:45 pm	**Transport Group 1 to Marshak**	
1:00-5:30 pm • 1:00-2:00 pm – Lab 1 • 2:00-3:00 pm – Lab 2 • 3:00-3:20 Break + venue swap • 3:20-4:20 pm – Lab 3 • 4:20-5:20 pm – Lab 4 • 5:20-5:30 pm – Final Transport from Marshak to Hospital	**Labs – 1 hour per rotation** **Lab 5: Small Ruminant CSF Centesis** • Identify the relevant anatomical landmarks and describe appropriate patient positioning for performing a lumbosacral cerebrospinal fluid (CSF) centesis in a small ruminant. • Demonstrate the proper technique for lumbosacral CSF centesis, including needle placement, CSF collection, and appropriate handling of the sample. • Recognize potential complications and limitations of the procedure **Lab 6: Tracheostomy lab -** Horse, Cow, Small ruminant • Identify and compare the ventral cervical anatomy relevant to tracheostomy in the horse and ruminant, and how this anatomy may influence considerations for tracheostomy site. • Perform a temporary tracheostomy on equine and ruminant cadaveric specimens using the correct technique and equipment. • Describe the species-specific indications for emergency and elective temporary tracheostomy, the principles of equipment selection, protocol for placement, and management/aftercare.	*Lab 5: Dr. Daniela Luethy* *Lab 6: Dr. Holly Stewart*

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DAY 2 (Continued) Friday, November 6, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
	Lab 7: Bovine I - Examination of the Down Cow • Discuss challenges and tips involving moving and transporting of recumbent cattle • Learn and/review the most common differential diagnoses for down cattle (*the "5 Ms"*) • Learn/review the logical, step-by-step approach to a physical exam on a recumbent cow, including evaluation of: the mammary gland, the reproductive system, the musculoskeletal system, and the neurologic system **Lab 8: Bovine II -** Mammary Gland Assessment and Treatment • Evaluate the mammary glands and teats by deep digital palpation and/or ultrasound imaging and name and explain various equipment used to manage issues related to udder teats of cattle. • Explain and demonstrate appropriate teat preparation for cleaning and aseptic preparation for microbiological evaluation. • Discuss teat sphincter abnormalities and teat sphincter therapy and demonstrate correct teat end preparation for use of a teat slitter instrument. Explain and perform teat streak canal desensitization by use of lidocaine administration followed by insertion of instrument and performance of procedure. • Discuss teat cistern obstruction and obstruction removal by demonstrating correct teat end preparation for use of an alligator forceps to safely remove foreign bodies, fibrous bodies, or debris from the teat cistern. Again, explain and perform teat streak canal desensitization by use of lidocaine administration followed by insertion of instrument and performance of procedure.	*Lab 7: Dr. Marie Fecteau* *Lab 8: Dr. Billy Smith*
5:30-7:30 pm	**Dinner: LAIM Career Panel**	*Faculty*
7:45 pm	**Shuttle to hotel**	

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DAY 3 Saturday, November 7, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
7:30 am	**Shuttle to New Bolton Center, Kennett Square PA**	
8:00-8:50 am	**Lecture 9: Cytology/Hematology** • Apply a focused, systematic approach to evaluating large-animal blood smears. • Recognize clinically important erythrocyte, leukocyte, and platelet abnormalities and interpret them in clinical context. • Differentiate normal or reactive peritoneal fluid from nonseptic inflammation, septic peritonitis, enterocentesis, and neoplasia based on cytologic findings.	*Dr. Francisco Conrado*
8:55-9:45	**Lecture 10: Acid-Base for Internists** • Compare and contrast bicarbonate-centered and physicochemical (Stewart) approaches to acid–base interpretation, including the roles of bicarbonate, carbon dioxide, strong ions, weak acids, and unmeasured anions (anion gap). • Apply the Stewart approach to clinical cases to identify the underlying mechanisms of acid–base disturbances. • Integrate acid–base, electrolyte, blood gas, and clinical data to formulate a clinically relevant diagnosis and treatment plan for large animal veterinary patients.	*Dr. Rose Nolen-Walston*
9:45-10:00 am	**Break**	

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DAY 3 (Continued) Saturday, November 7, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
10:00-10:50 am	**Lecture 11: Behavior/Ethics -** Recognizing Discomfort in Large Animal Species • Appreciate the role of unrecognized and often challenging to diagnose discomfort in equine behavior and performance problems. • Appreciate the ethical responsibility of equine veterinarians to rule out physical discomfort whenever evaluating behavior and performance problems in horses. • Understand the role of an equine behaviorist in the recognition, diagnosis, and monitoring of discomfort in horses.	*Dr. Sue McDonnell*
10:55-11:45 am	**Lecture 12: Large animal pain management** • Recognize and assess pain in horses, cattle, small ruminants, camelids, and pigs using species- and condition-appropriate behavioral and clinical indicators. • Develop a multimodal analgesic plan by selecting complementary systemic, local, and regional analgesic techniques based on the anticipated pain mechanism and severity. • Compare the clinical applications, benefits, and adverse effects of commonly used large-animal analgesics, including NSAIDs, opioids, alpha-2 adrenergic agonists, ketamine, lidocaine, and local anesthetics.	*Dr. Klaus Hopster*
11:45-12:45 pm	**Lunch**	
1:00-5:30 pm	**Labs – 1 hour per rotation** **Lab 9: Ophthalmology II** - SPL, tarsorrhaphy, corneal cytology • To perform common ophthalmic regional anesthesia: AP block, local blocks for SPL, eyelid blocking for tarsorrhaphy and subconjunctival injections. • To perform upper and lower SPL placement. • Place a temporary tarsorrhaphy.	*Lab 9: Dr. Caroline Monk*

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DAY 3 (Continued) Saturday, November 7, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
• 1:00-2:00 pm – Lab 1 • 2:00-3:00 pm – Lab 2 • 3:00-3:20 Break + venue swap • 3:20-4:20 pm – Lab 3 • 4:20-5:20 pm – Lab 4 • 5:20-5:30 pm – Final Transport from Hoffmann to Hospital	**Lab 10: Cytology and hematology** • Evaluate large-animal blood smears for clinically important abnormalities of erythrocytes, leukocytes, and platelets. • Recognize normal, inflammatory, reactive, and neoplastic cytologic patterns in peritoneal fluid. • Distinguish nonseptic inflammation, septic peritonitis, and enterocentesis based on cytologic findings. **Lab 11: Muscle biopsy** (needle or incisional) • Identify appropriate anatomic landmarks and biopsy sites for obtaining diagnostic muscle samples from the sacrocaudalis dorsalis medialis and gluteal muscles in horses. • Perform both open and needle muscle biopsy techniques, including an open biopsy of the sacrocaudalis dorsalis medialis muscle and a Bergström needle biopsy of the gluteal muscle. • Collect and handle muscle biopsy specimens appropriately to optimize sample quality and minimize artifact for subsequent histopathologic evaluation. **Lab 12: Horse CSF Centesis** (LS or C1-C2) • Identify appropriate anatomic landmarks and collection sites for performing lumbosacral (LS) and C1–C2 CSF centesis in horses. • Perform both lumbosacral and ultrasound-guided C1–C2 cerebrospinal fluid (CSF) collection techniques safely and effectively using proper aseptic procedure and positioning. • Collect and handle CSF specimens appropriately to preserve cellular integrity and sample quality for subsequent cytologic and biochemical evaluation. Review samples needed for each test.	*Lab 10: Dr. Francisco Conrado* *Lab 11: Dr. Kara Brown* *Lab 12: Dr. Sarah Colmer*
5:45 pm	• Shuttle to hotel – Longwood Gardens (optional event)	

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DAY 4 Sunday, November 8, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
7:30 am	**Shuttle to New Bolton Center**	
8:00-10:00 am (each lab 2 hr)	**Lab 13: Case-based EKG lab** • Increase confidence in recognizing and interpreting arrhythmias commonly encountered in large animal species • Develop a physiology-based approach to ECG interpretation that can be applied to even complex cardiac rhythms **Lab 14: Myelogram (Group 1)** • Identify appropriate anatomic landmarks and patient positioning for safe atlanto-occipital (AO) CSF centesis • Safely administer non-ionic contrast medium (e.g., iohexol) into the subarachnoid space to ensure adequate diagnostic administration and minimize risk of adverse events. • Obtain and interpret diagnostic radiographic myelographic images of the cervical vertebral column to evaluate for extradural spinal cord compression	*Lab 13: Dr. JoAnn Slack and Dr. Kavita Shroff* *Lab 14: Dr. Sarah Colmer*
10:00-10:30	**Break**	

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DAY 4 (Continued) Sunday, November 8, 2026		
Time (Eastern Time)	**Topic**	**Presenter(s)**
10:30-12:30 pm (each lab 2 hr)	**Lab 13: Case-based EKG lab** • Increase confidence in recognizing and interpreting arrhythmias commonly encountered in large animal species • Develop a physiology-based approach to ECG interpretation that can be applied to even complex cardiac rhythms **Lab 14: Myelogram (Group 2)** • Identify appropriate anatomic landmarks and patient positioning for safe atlanto-occipital (AO) CSF centesis • Safely administer non-ionic contrast medium (e.g., iohexol) into the subarachnoid space to ensure adequate diagnostic administration and minimize risk of adverse events. • Obtain and interpret diagnostic radiographic myelographic images of the cervical vertebral column to evaluate for extradural spinal cord compression	*Lab 13: Dr. JoAnn Slack and Dr. Kavita Shroff* *Lab 14: Dr. Sarah Colmer*
12:30-1:30 pm	**Lunch and Course Wrap Up**	

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