614 Equine Clinical Proficiency Clerkship
Spring. 3 credits. P:M: VM 533 RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. Field and practitioner-based clinical techniques, training, and hands-on experience for future equine practitioners.

615 Equine Emergency and Critical Care Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. Lectures, laboratories, seminars, and emergency on-call clinical case evaluation, treatment, and management.

620 Equine Clinical Clerkship I
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. Supervised practice in equine medicine and surgery. Diagnosis, prognosis, treatment, and disease prevention. Required clerkship.

621 Equine Practice Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. Supervised, off-campus experience in an assigned veterinary practice. Regular equine farm calls. After-hours emergencies. Veterinary practice management.

622 Equine Clinical Clerkship II
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Advanced general training in equine medicine and surgery.

623 Equine Musculoskeletal Diseases Clerkship
Fall, Spring, Summer. 3 credits. P:M: (LCS 620 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Techniques and procedures used for the diagnosis and management of equine musculoskeletal diseases. Hospital and field cases.

624 Equine Theriogenology Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Diagnostic methods used in equine reproduction.

625 Equine Herd Health Clerkship
Fall, Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Establishment and maintenance of equine herd health programs. Reproduction, parasite control, immunization, and diagnostic medicine and surgery in the field.

626 Advanced Equine Surgery Clerkship
Fall, Spring, Summer. 3 credits. RB: (LCS 620 and LCS 622) and Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Advanced, in-depth training in overall surgical management of equine surgical patients. Breeds used for racing or sport.

627 Advanced Equine Medicine Clerkship
Spring. 3 credits. RB: (LCS 620) and Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Advanced, in-depth training in the medical management of equine patients. Emphasis on neonates.

628 Techniques in Equine Anesthesia and Surgery
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Principles of diagnosis, treatment and prevention of diseases in food and fiber animals. In-clinic and off-farm experience.

630 Food Animal Medicine and Surgery Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Supervised, off-campus experience in an assigned veterinary practice. Regular food animal farm calls. After-hours emergencies. Veterinary practice management.

631 Food Animal Practice Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Principles of diagnostic treatment and prevention of diseases in food and fiber animals. Self-directed and in-depth on-farm and in-clinic experience.

632 Advanced Food Animal Medicine and Surgery Clerkship
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. P:M: (LCS 630 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Principles of diagnostic treatment and prevention of diseases in food and fiber animals. Self-directed and in-depth on-farm and in-clinic experience.

636 Beef Production Medicine Clerkship
Fall. 3 credits. P:M: LCS 630 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Veterinary management of production and health of beef cattle. Optional visits to out-of-state facilities may be offered.

639 Small Ruminant Medicine and Management Clerkship
Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. Health care to small ruminants on an individual and flock or herd basis. Emphasis on sheep.
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640  Large Animal Anesthesia Clerkship
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Concepts and supervised practice in large animal anesthesiology.

641  Food Animal Theriogenology Clerkship
Fall. 3 credits. P:M: LCS 630 or concurrent-ly RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Techniques for evaluating the reproductive performance of individual food animals and populations. Emphasis on cattle. Farm visits.

646  Equine Neonatal Medicine Clerkship
Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.

647  Concepts of Agricultural Practice Clerkship
Fall, Spring, Summer. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Fundamentals of animal agriculture practice and food systems. Etiology, diagnosis, and prevention of common food animal diseases. Practice of basic clinical skills.

667  Veterinary Preceptorship
Fall, Spring, Summer. 3 credits. RB: (LCS 620 or LCS 621 or LCS 630 or LCS 631) or Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Applied large animal clinical science in private practices. Supervised off-campus experience.

678  Government and Corporate Veterinary Practice
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Study of government veterinary practice issues including state, federal and international regulatory medicine, state and federal public health, state and federal wildlife, military medicine, food safety, and animal control. Study of corporate veterinary practice pertaining to the pharmaceutical and chemical industries.

680  Food Animal Techniques
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Basic food animal techniques including surgery, anesthesia, diagnostic and therapeutic procedures.

681  Food Animal Production Medicine I
Fall. 3 credits. P:M: (LCS 630 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Enter-level principles of production medicine as applied to food animal practice.

682  Food Animal Production Medicine II
Fall, Spring. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: (LCS 681 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Continuation of LCS 681. Farm evaluations and group problem-solving. Application and further development of skills and concepts.

683  Food Animal Production Medicine III
Spring. 3 credits. P:M: (LCS 682 or concurrently) and (LCS 683 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
Analysis of farm records and production medicine variables. Advanced production medicine topics. Individual, off-campus farm experiences required.

685  Ruminant Health Problem Solving Clerkship
Spring. 3 credits. P:M: (LCS 681 or concurrently) and (LCS 682 or concurrently) and (LCS 683 or concurrently) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine.
The North American dairy industry and the role of veterinarians in health management programs on large versus small dairy herds. Students are required to spend one week at the University of Guelph.

690  Veterinary Public Health Field Experience Clerkship
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine.
Advanced public health training with individualized problems and training objectives at off campus locations.

691  Veterinary Public Health Research Clerkship
Fall, Spring, Summer. 3(2-0) RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Approval of department.
Advanced public health research. Individualized problems and training objectives.

809  Special Problems in Large Animal Surgery
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to graduate students in the Large Animal Clinical Sciences major. Approval of department.
Elective work in surgical research problems student's interest.

811  Special Problems in Large Animal Medicine
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to graduate students in the Department of Large Animal Clinical Sciences. Approval of department.
Elective work in medicine-related research problems.

813  Seminar
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to graduate students in the Large Animal Clinical Sciences major. Individualized program of seminar attendance culminating in a student-presented seminar.

823  Wildlife Disease Ecology and Management
Summer of even years. 3(2-3) Interdepartmental with Fisheries and Wildlife and Small Animal Clinical Sciences. Administered by Fisheries and Wildlife. RB: (FW 423) or previous course work in vertebrate ecology, epidemiology or animal disease management. R: Open only to graduate students in the College of Agriculture and Natural Resources or the College of Natural Science or the College of Veterinary Medicine.
Ecological and epidemiological principles of wildlife disease investigation and management.

829  Design and Conduct of Epidemiological Studies and Clinical Trials
Spring. 3(2-2) Interdepartmental with Epidemiology. Administered by Large Animal Clinical Sciences. RB: (VM 533) or approval of department. R: Open only to graduate students in the colleges of Human Medicine, Osteopathic Medicine, or Veterinary Medicine.

830  Epidemiology of Foodborne Diseases and Food Safety: An Overview
Fall, Spring. 1(1-0) Interdepartmental with Epidemiology. Administered by Large Animal Clinical Sciences. RB: Advanced undergraduate courses in biology, microbiology, biological sciences, biochemical sciences, food technology. R: Approval of department.

840  Advanced Equine Internal Medicine Topics I
Spring. 2(2-0) R: Approval of department.
Body system approach to disease with emphasis on physiology and pathophysiology of the respiratory, cardiovascular, musculoskeletal and nervous systems.

841  Advanced Equine Internal Medicine Topics II
Spring. 2(2-0) R: Approval of department.
Body system approach to disease with emphasis on physiology and pathophysiology of the gastrointestinal, urinary, hematopoietic, and endocrine systems.

842  Equine Orthopedics
Fall of even years. 2(0-4) R: Approval of department.
Principles and techniques in equine orthopedics.
843 **Intensive Care and Emergency Medicine**  
Spring. 2(2-0) RB: Veterinarians in CVM residency program. R: Open to graduate students in the College of Veterinary Medicine.  
Intensive care and emergency medicine and surgery topics including shock, trauma, fluid therapy, blood products, and ventilation therapy.

844 **Advanced Equine Surgery Techniques**  
Spring. 2(0-4) R: Open to graduate students in the College of Veterinary Medicine. Approval of department.  
Advanced equine surgical topics including gastrointestinal, orthopedic, respiratory, and minimally invasive techniques.

899 **Master’s Thesis Research**  
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to graduate students in the Department of Large Animal Clinical Sciences.  
Master’s thesis research.

901 **Investigating the Lung**  
Fall of even years. 2(2-0) Interdepartmental with Pathobiology and Diagnostic Investigation and Physiology. Administered by Large Animal Clinical Sciences. R: Open to graduate students.  

999 **Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 36 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Open only to doctoral students in the Department of Large Animal Clinical Sciences.  
Doctoral dissertation research.