563 Bovine Pregnancy Diagnosis
Fall, 1(1-1) RB: Completion of year 2 in
the graduate professional curriculum. R:
Open to graduate-professional students
in the College of Veterinary Medicine.
Basic reproductive physiology. Farm based labora-
tories in bovine transrectal palpation and sonogra-
phy. Field trips required.

564 Nutritional Management of Dairy Cow
Health
Spring, 1(1-1) RB: Completion of year 1
in the graduate professional curriculum. R:
Open to graduate-professional stu-
dents in the College of Veterinary Medi-
cine. Diet formulation for promotion of dairy cow health
and prevention of peripartum disease.

565 Equine Sports Medicine
Fall, 1(1-0) RB: Completion of year 2 in
the graduate professional curriculum. R:
Open to graduate-professional students
in the College of Veterinary Medicine.
Physiologic responses to exercise and discipline
specific disorders of equine athletes.

566 Current Topics in Food Systems Vet-
inary Medicine
Fall, 1(0-1) R: Open to graduate-profes-
sonal students in the College of Veteri-
nary Medicine and open to graduate stu-
dents in the College of Veterinary Medi-
cine. Techniques in management, interpretation and ap-
lication of new knowledge in the scientific literature
of food systems veterinary medicine.

568 Biological Risk Management for Beef
and Dairy Farms
Fall, 1(1-0) RB: Completion of year 2 in
the graduate professional curriculum. R:
Open to graduate-professional students
in the College of Veterinary Medicine.
Principles and methods used to reduce the introduc-
tion and spread of infectious disease agents on beef
and dairy farms. Field trip required.

569 Sport Horse Evaluation,
Rehabilitation and Therapy
Spring, 1(1-0) 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.
Hands-on diagnostic evaluation and treatment of the
equine athlete. Traditional medical approaches, acu-
puncture, and chiropractic manipulation.

590 Selective Topics in Large Animal Clin-
ical Sciences
Fall, Spring, 1(1-0) RB: 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.
Important field of study in Large Animal Clinical Sci-
ences.

610 Clinical Problems in Large Animal
Clinical Sciences
Fall, Spring, Summer. 1 to 3 credits. A
student may earn a maximum of 9 cred-
its in all enrollments for this course. RB:
Completion of semester 5 of the gradu-
ate-professional program in the College
of Veterinary Medicine. R: Approval of
department. Advanced clinical training in a program related to
large animal clinical sciences.

611 Research Problems in Large Animal
Clinical Sciences
Fall, Spring, Summer. 1 to 3 credits. A
student may earn a maximum of 6 cred-
its in all enrollments for this course. RB: Com-
pletion of semester 5 of the graduate-
professional program in the College
of Veterinary Medicine. R: Approval of
department. Research related to a large animal specialty.

613 Special Problems in Large Animal
Clinical Sciences at Off-Campus Sites
Fall, Spring, Summer. 3 credits. A stu-
dent may earn a maximum of 6 credits in
all enrollments for this course. RB: Com-
pletion of semester 5 of the graduate-
professional program in the College
of Veterinary Medicine. R: Approval of de-
partment. Advanced clinical-phase training in large animal clin-
ical sciences for which on-campus training is not
available. Individualized problems and training ob-
jectives.

614 Equine Clinical Proficiency Clerkship
Spring. 3 credits. P: VM 553 RB: Com-
pletion of semester 5 of the graduate
professional program in the College of
Veterinary Medicine. R: Open to gradu-
ate-professional students in the College
of Veterinary Medicine.
Lectures, laboratories, seminars, and emergency
on-call clinical case evaluation, treatment, and man-
agement.

615 Equine Emergency and Critical Care
Clerkship
Fall, Spring, Summer. 3 credits. RB:
Completion of semester 5 of the gradu-
ate-professional program in the College
of Veterinary Medicine. R: Open to gradu-
ate-professional students in the College
of Veterinary Medicine.

616 Large Animal Medicine and Surgery
Fall, Spring, Summer. 6(6-0) RB: Com-
pletion of semester 5 of the graduate
professional program in the College
of Veterinary Medicine. R: Open to gradu-
ate-professional students in the College
of Veterinary Medicine.
Diagnosis and management of individual medical
and surgical cases, as part of a veterinary patient
care team, in the large animal veterinary teaching
hospital and at the Training Center for Dairy Profes-
sionals.

621 Practice Based Ambulatory Clerkship
Fall, Spring, Summer. 3 credits. A stu-
dent may earn a maximum of 6 credits in
all enrollments for this course. RB: Com-
pletion of semester 5 of the graduate-
professional program in the College
of Veterinary Medicine. R: Open to gradu-
ate-professional students in the College
of Veterinary Medicine.
Supervised, off-campus experience in an assigned
veterinary practice. Regular equine and food animal
farm calls. After-hours emergencies. Veterinary practice management.
Advanced Equine Clinical Clerkship  
Fall, Spring, Summer. 3 credits. P: LCS 616 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Advanced general training in equine medicine and surgery.

Equine Musculoskeletal Diseases Clerkship  
Fall, Spring, Summer. 3 credits. P: (LCS 616 or concurrently) and (LCS 622 or LCS 615) RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Techniques and procedures used for the diagnosis and management of equine musculoskeletal diseases. Hospital and field cases.

Equine Theriogenology Clerkship  
Fall, Spring, Summer. 3 credits. P: LCS 616 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Diagnostic methods used in equine reproduction.

Equine Primary Care Clerkship  
Fall, Spring. 3 credits. A student may earn a maximum of 0 credits. This course is not reenrollable RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students 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.

Advanced Equine Surgery Clerkship  
Fall, Spring, Summer. 3 credits. P: LCS 616 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Advanced, in-depth training in overall surgical management of equine surgical patients. Breeds used for racing or sport.

Advanced Equine Medicine Clerkship  
Spring. 3 credits. P: LCS 616 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Advanced, in-depth training in the medical management of equine patients. Emphasis on neonates.

Techniques in Equine Anesthesia and Surgery  
Fall, Spring, Summer. 3 credits. P: (LCS 616 and LCS 622) or LCS 615 RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 


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. R: Open to graduate-professional students 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.

Advanced Food Animal Medicine and Surgery Clerkship  
Fall, Spring, Summer. 3 credits. P: LCS 616 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Principles of diagnostic treatment and prevention of diseases in food animals. Self-directed and in-depth on-farm experience.

Swine Production Medicine Clerkship  
Fall. 3 credits. 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. 

Swine production medicine and herd problem-solving topics. Participation in the swine medicine clinical course at Iowa State University. Field trips required.

Beef Production Medicine Clerkship  
Fall. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students 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.

Small Ruminant Medicine and Management Clerkship  
Spring. 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.

Large Animal Anesthesia Clerkship  
Fall, Spring, Summer. 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 0 credits. 

Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Concepts and supervised practice in large animal anesthesiology.

Food Animal Theriogenology Clerkship  
Summer. 3(3-0) P: LCS 679 RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine. 

Techniques for evaluating the reproductive performance of individual food animals and populations, primarily on cattle, but other species including swine and small ruminants.

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


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.

Wildlife Disease Ecology and Management  
Fall, Spring. 3 credits. R: Open to graduate-professional students in the College of Veterinary Medicine.

Principles of investigations and management of pathogens at the wildlife, livestock, and human interface. Multidisciplinary teamwork skill and communication, research, management of emerging and reemerging wildlife-borne diseases.

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. R: Open to graduate-professional students in the College of Veterinary Medicine.

Applied large animal clinical science in private practices. Supervised off-campus experience.

Government and Corporate Veterinary Practice  
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Government veterinary practice issues including state, federal and international regulatory medicine, state and federal public health, state and federal wildlife, military veterinary medicine, food safety, and animal control. Study of corporate veterinary practice pertaining to the pharmaceutical and chemical industries.
679 Food Animal Production Medicine I
Spring. 3 credits. RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Entry-level principles of production medicine as applied to food animal practice.

682 Food Animal Production Medicine II
Fall, Spring, Summer. 3 credits. P: LCS 679 or concurrently RB: Completion of semester 5 of the graduate-professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Farm evaluations and group problem-solving. Application and further development of skills and concepts learned in LCS 679.

685 Ruminant Health Problem Solving Clerkship
Spring. 3 credits. P: LCS 682 or concurrently RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students 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. R: Open to graduate-professional students in the College of Veterinary Medicine or approval of department.

Advanced public health training with individualized problems and training objectives at off campus locations.

691 Veterinary Public Health Research Clerkship
Fall, Spring, 3(3-0) RB: Completion of semester 5 of the graduate professional program in the College of Veterinary Medicine. R: Open to graduate-professional students in the College of Veterinary Medicine.

Advanced public health research. Individualized problems and training objectives.

809 Special Problems in Large Animal Surgery
Fall, Spring, Summer. 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.

Elective work in surgical research problems student's interest.

811 Special Problems in Large Animal Medicine
Fall, Spring, Summer. 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 4 credits in all enrollments for this course. R: Open to graduate students in the College of Veterinary Medicine.

Presentation and discussion of current topics in large animal clinical sciences by departmental graduate students, faculty, or outside speakers.

821 Conservation Medicine
Fall of even years. 3(3-0) Interdepartmental with Fisheries and Wildlife. Administered by Fisheries and Wildlife. RB: Prior course work in vertebrate ecology, epidemiology and/or animal disease management. R: Open to graduate students or approval of department. SA: FW 823.

Ecological and epidemiological principles of wildlife disease impacts and management. Critical review of selected case studies.

829 Design and Conduct of Epidemiological Studies and Clinical Trials
Spring. 3(2-2) Interdepartmental with Epidemiology. Administered by Large Animal Clinical Sciences. P: (VM 533 or EPI 810) and (EPI 808 or EPI 808B)


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
Fall, 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.

863 Wildlife Disease Ecology
Spring of even years. 3(3-0) Interdepartmental with Fisheries and Wildlife and Integrative Biology. Administered by Fisheries and Wildlife. RB: Additional course work in ecology, zoology, microbiology and environmental sciences. R: Open to graduate students. Not open to students with credit in FW 463.

Role of wildlife disease in ecological interactions, factors underlying pathogen emergence, mathematical modeling of infectious diseases, conservation medicine.