

CURRENT DEPARTMENT OF CLINICAL SCIENCES COURSES (updated 10/07/2024)

GRADUATE COURSES 800-899 (Given for graduate credit only)

# / Type	Credits/ Grading	Offered	Standing	Course	Catalog Description	Coordinator
CS 819 Crosslisted VCS 819	1/CR	Spring	1st, 2nd, 3rd or Grad	Veterinary Medicine in a Foreign Context Various Faculty [Distance course coordinated through OIP: Office of Internat'l Programs]	(1) II. Lecture and discussion-based course preparing students to enroll in VCS 821 International Veterinary Study Tours Pr.: Enrolled as a 1 st -3rd year or grad student in the College of Vet Med. Additional students admitted with discretion of faculty leading the tour.	Renberg
CS 820 /D Crosslisted VCS 820	1/G	Spring	1 st , 2 nd yr. or Grad student w/ instructor permissio n	Topics in Global Veterinary Medicine Renberg	(1) II. An overview of the role of veterinarians around the world. Topics include international uses and attitudes about animals, problems the world faces pertaining to livestock production, and social tensions. One hour lecture each week. Pr.: 1 st or 2 nd year standing in the College of Veterinary Medicine, or enrolled as a graduate student with instructor permission.	Renberg
VCS 821 Crosslisted CS 821	1-4/CR	Aut Summer	1st, 2nd, 3rd or Grad	International Veterinary Study Tours Various Faculty [Distance course coordinated through OIP: Office of Internat'l Programs]	(1) S. Faculty-led trip for students to explore veterinary medicine in a foreign country. Prior to travel, students will learn about the country through lectures, research, presentations. During the trip they will interact with nationals in the veterinary profession and experience the culture. Pr.: Successful completion of VCS 819 Veterinary Medicine in a Foreign Context in the semester immediately preceding. Enrolled as a 1 st -3rd year or grad student in the College of Vet Med. Additional students admitted with discretion of faculty leading the tour.	Renberg
CS 822 /D Crosslisted VCS 822	1/G-IH	Fall	1 st , 2 nd , 3 rd or Grad	Introduction to Sustainable Beef Systems Lancaster, Dollarhide	The goal of this course is to provide veterinary students with an understanding of sustainability in beef systems. The course will focus on beef cattle production practices, principles of sustainable food systems, systems thinking, and impacts of food choices. It will include topics on US Roundtable for Sustainable Beef self-assessment guides, impact of management practices on sustainability, impact of beef industry on the economy, and beef's role in human dietary. It will include guest lectures and field trips for students to learn from those in the field. A large emphasis will be placed on systems thinking (i.e., how one change affects other aspects of the system). Pr.: 1 st , 2 nd , or 3 rd Year Stand in the College of Veterinary Medicine or Graduate School Standing	Lancaster
CS 823 /O	1/G	Fall	Grad Student	Advanced Diagnostic Imaging - Small Animal Biller	(1) I. Case presentation/discussion of diagnostic imaging techniques used in small animal veterinary practice, including radiography, ultrasonography, nuclear imaging, magnetic resonance imaging, and computer tomography. Clinical cases will demonstrate imaging methods and technology used in the various body systems, with an emphasis on	Biller

					interpretation and clinical diagnosis. Pr.: DVM degree. Students may re-enroll for a maximum of three credits.	
CS 824 /D	1/G	Fall	DVM or consent	Topics in Small Animal Internal Medicine I Harkin	(1) I. Various topics in small animal internal medicine will be presented. Different topics will be covered in various years at instructor's discretion. In depth discussion of pathophysiology and recent advances in diagnostics and therapeutics. Course may be repeated with approval of instructor. Pr.: DVM Degree	Harkin
CS 825 /D	1/G	Spring	DVM	Topics in Small Animal Internal Medicine II	(1) II. Various topics in small animal internal medicine will be presented. One topic will be covered in a one-hour conference weekly. In-depth discussion of pathophysiology and recent advances in diagnostics and therapeutics. Course may be repeated with approval of instructor. Pr.: DVM Degree	Harkin
CS 826 /D	1/G	Fall	DVM	Introduction to Small Animal Endoscopy Renberg	(1) I. Introduction to the fundamentals of small animal (canine and feline) endoscopy, including respiratory, gastrointestinal, endoscopy, laparoscopy, and arthroscopy. Thirteen lectures with 2 laboratories will be offered. Offered Fall Semester only. Pr.: DVM degree and approval from course coordinator.	
CS 827	Var/G	Fall, Spring	DVM or consent	Advanced Topics in Small Animal Surgery Renberg, Roush	(Var) I, II. Current and foundational information on techniques, theory, and management in small animal surgery. Pr.: DVM degree or approval of instructor.	Renberg
CS 828 /D	1/G	Fall/Spring	DVM	Wound Management and Reconstruction Upchurch	(2) I. Didactic lectures on the science of wound healing physiology and on the clinical application of wound healing principles. Laboratory sessions will be incorporated to cover the principles of reconstructive surgery. Pr.: DVM degree	D Upchurch
CS 829 /D	1/G	Fall, Spring	Grad Student	Applied Production Medicine Dritz, Larson, Renter, Sanderson, White	(1) I, II. Advanced training in agricultural production medicine research. Emphasis on answering production medicine problems through the appropriate design and interpretation of research models. Course is discussion-based and facilitated by a team of faculty members. Students will be expected to participate in weekly topic discussions. Pr.: Graduate Student.	White
CS 830	3/G	Spring	Grad Student	Design and Interpretation of Clinical Trials Larson, White	(3) II. Designing appropriate experimental studies to answer research that can be addresses in clinical and field settings, analyzing, interpreting and communicating the results in a suitable manner.	Larson
CS 831	3/G	Spring	Ophtho Resident at KSU VHC	Veterinary Ophthalmic Surgery Techniques A.Rankin	(3) II. Lectures will cover ophthalmic instruments and proper surgical techniques for commonly performed ophthalmic surgeries. Cadavers will be available to practice adnexal and corneal ophthalmic surgeries. Pr.: Ophthalmology resident at Kansas State University Veterinary Health Center.	A. Rankin

VCS 832 /D Crosslisted CS 832	1/G	Fall	1 st , 2 nd , 3 rd or Grad	Antimicrobial Resistance in Bacteria: A One Health Perspective Amachawadi, Apley, Lubbers	(1) I. Antimicrobial Resistance (AMR) is a significant global health threat of the 21 st century. This course addresses the concept of One Health which integrates the knowledge of the biological elements necessary for the evolution of antimicrobial resistance (AMR) in bacteria and other factors (animals, humans, environments, socioeconomic features, and behavioral changes) involved in its emergence and dissemination. Pr.: 1 st , 2 nd , or 3 rd Year Stand in the College of Veterinary Medicine or Graduate School Standing	Amachawadi
CS 833	2/GR	Spring – every 3 yrs	Grad Student	Nephrology/Urology	(1) II. Advanced studies about small animal nephrology/urology (various topics: Pathophysiology, clinical signs, differential diagnoses, diagnostic approach, and treatment consideration). Pr: DVM Degree and Graduate Student	
CS 834	1/G	All	Sx Resident at KSU VHC and Grad Student	Surgical Pathophysiology I – Hematology, Anesthesia and Infection	(1) I. II. S. Designed to expose small animal surgery residents to a standard curriculum set out by the American College of Veterinary Surgeons in preparation for the Phase I Surgery Qualification examination. Assigned textbook reading covers various topics: Hematology, Anesthesia and Infection. Meet for one hour weekly with faculty to guide the resident's self-study, answer questions, and correct deficiencies. Pr: Surgery resident at Kansas State University Veterinary Health Center and Graduate Student	Roush
CS 835	1/G	All	Sx Resident at KSU VHC and Grad Student	Surgical Pathophysiology II – Analgesia and Wound Management	(1) I. II. S. Designed to expose small animal surgery residents to a standard curriculum set out by the American College of Veterinary Surgeons in preparation for the Phase I Surgery Qualification examination. Assigned textbook reading covers various topics: Analgesia and Wound Management. Meet for one hour weekly with faculty to guide the resident's self-study, answer questions, and correct deficiencies. Pr: Surgery resident at Kansas State University Veterinary Health Center and Graduate Student	Roush
CS 836	1/G	All	Sx Resident at KSU VHC and Grad Student	Surgical Pathophysiology III – Soft Tissue Surgery	(1) I. II. S. Designed to expose small animal surgery residents to a standard curriculum set out by the American College of Veterinary Surgeons in preparation for the Phase I Surgery Qualification examination. Assigned textbook reading covers Soft Tissue Surgery topics. Meet for one hour weekly with faculty to guide the resident's self-study, answer questions, and correct deficiencies. Pr: Surgery resident at Kansas State University Veterinary Health Center and Graduate Student	Roush
CS 837	1/G	All	Sx Resident at KSU VHC and Grad	Surgical Pathophysiology IV – Orthopedic and Neurosurgery	(1) I. II. S. Designed to expose small animal surgery residents to a standard curriculum set out by the American College of Veterinary Surgeons in preparation for the Phase I Surgery Qualification examination. Assigned textbook reading covers various topics:	Roush

			Student		Orthopedic and Neurosurgery. Meet for one hour weekly with faculty to guide the resident's self-study, answer questions, and correct deficiencies. Pr: Surgery resident at Kansas State University Veterinary Health Center and Graduate Student	
CS 838	2/G	Spring - every 3 yrs	DVM Degree	Advanced Small Animal Endocrinology	(2) II. Advanced topics in small animal endocrinology. Emphasis on comparative aspects of endocrine gland disease and its clinical manifestations in dogs and cats. Primary literature, review articles, and advanced texts will be the principle source of information. Pr.: DVM Degree.	Schermerhorn
CS 840 Crosslisted VCS 840	2/ Graded	Spring, Fall	2 nd /3 rd yr standing or Grad Student	Communication with the Agricultural Worker White, Lancaster	(2) I. An elective course focused on improving the communications between veterinarians and animal caretakers in production agriculture and equine industries. The course will use face to face discussions and online modules in Quizlet to teach communications skills with a focus on common terminology and vocabulary necessary for effective communication. Course Material will involve audio-visual methods using immersion philosophy. PR.: 2 nd or 3 rd year standing in the College of Veterinary Medicine or graduate student.	Lancaster
CS 841 /O	1/G	Spring, Fall	DVM and Grad Student	Advanced Clinical Gastroenterology Jugan	(1) II. Advanced study of gastrointestinal structure and function with discussions of material presented applicable to the general ACVIM board examinations. Assigned journal articles will cover literature references from sources on the ACVIM reading list, as well as general physiology taken from human literature. Pr: DVM degree and Kansas State University Graduate Student Standing	Jugan
CS 842 /O	1/G	Spring, Fall	DVM and Grad Student	Advanced Clinical Hepatology Jugan	(1) II. Advanced study of hepatology with discussions of material presented applicable to the general ACVIM board examinations. Assigned journal articles will cover literature references from sources on the ACVIM reading list, as well as general physiology taken from human literature. Pr: DVM degree and Kansas State University Graduate Student Standing	Jugan
CS 850 /O	1-6 /CR	All	Consent	Research in Medicine	(1-6) I, II, S. An attempted solution of some of the medical and parasitological problems confronting the practitioner of veterinary medicine. Pr.: Consent of staff.	Davis
CS 851 /D	1-5/G	All	DVM or consent	Breeding Diseases	(1-5) I, II, S. Advanced studies of the breeding diseases of domestic animals. Pr.: DVM degree or consent of staff.	Davis
CS 852 /D	3/G	Fall-Odd yrs	DVM or consent	Interpretation of Radiology Studies of Body Systems	(3) I. Advanced discussions of radiologic interpretation, indications and interpretation of alternate imaging procedures (MRI, CT, nuclear medicine, ultrasound). Pr.: DVM degree or consent of department head prior to registration.	
CS 854 /D	1-3/G	All	DVM or consent	Systemic Medicine I	(1-3) I, II, S. Study of the medical aspects of diseases of the urinary, nervous, and integumentary systems, and special senses. Pr.: DVM	Harkin

					degree or consent of department head.	
CS 855 /D	1-3/G	Fall	DVM or consent	Systemic Medicine II	(1-3) I. Study of the medical aspects of diseases of the special senses, cardiovascular, respiratory, musculoskeletal, and endocrine systems. Pr.: DVM or consent of department head.	
CS 857 /D	1/G	Fall	DVM, LA Resident/ Intern	Large Animal Surgery Current Literature Lutter, McCarthy	(1) I. Presented in the style of a journal club with participants presenting current literature related to equine and farm animal surgery. The journal articles focus on literature from the American College of Veterinary Surgeons reading list (EVJ, EVE, JAVMA, VRU, VetSurg) within the last 5 years as well as foundational literature. Clinical case scenarios will also be used to assess students' knowledge. The goal of the course is to enhance students' knowledge of the current large animal orthopedic and soft tissue literature. Pr.: DVM, Large Animal Resident or Intern	Avellar
CS 857 /O	1/G	Fall Spring	DVM or consent	Clinical Interpretation of Equine Diagnostic Images	(1) I, II. Graduate veterinary students will meet one hour weekly to review clinical equine images and review pertinent literature. Pr.: Graduate student in the College of Veterinary Medicine.	
CS 858 /O	4/G	Spring, every 3 rd yr –offered next in Spring 2016	DVM or consent	Orthopedic Surgery Renberg, Roush	(4) II. Fundamentals, theory, and practice concerning genetic metabolic, infectious, neoplastic and traumatic diseases of bones and joints. Pr.: DVM degree or consent of department head.	Roush
CS 859 /O	1/G	Fall Spring		Clinical Sciences Seminar All House Officers	(1) I, II. A required seminar for all house officers and graduate students in the Department of Surgery and Medicine. One-hour conference weekly. May re-enroll for a total maximum of two credits.	Renberg
CS 862 /D Crosslisted VCS862	3/G	Fall	3 rd yr	Theriogenology Larson, Grady	(3) I. Consideration of prevention, diagnosis, and treatment of disease, and maintenance of health and productivity of the genital tract of domestic species. Three hours of lecture a week Pr.: Third-year standing in College of Veterinary Medicine or graduate student.	Larson

VCS 868 /D Dual listed CS 868	1/G Non-repeatable	Spring/Fall	Graduate Student in the College of Veterinary Medicine	Artificial Intelligence in Veterinary Medicine Lyon, Cassel	(1) I, II. This elective course explores the impact of artificial intelligence on the field of medicine, with a focus on veterinary applications. Students will learn about the fundamentals of AI, machine learning, and data science, and how these technologies are used to improve diagnostics, treatment planning, patient monitoring, and overall patient care. The course will also address ethical considerations, regulatory frameworks, and the future of AI in healthcare. Through lectures, case studies, and hands-on projects, students will gain a comprehensive understanding of AI's role in advancing medical and veterinary practices. Pr.: First, Second, or Third-year standing in the College of Veterinary Medicine or graduate student in the College of Veterinary Medicine.	Lyon
CS 870 /C	3/G	Summer	2 nd yr & 3.0 GPA	Diagnostic Methods in Feedlot Management Kennedy This course is cross listed with the Diagnostic Medicine/Pathobiology (DMP 810) proposed course.	(3) S. Practical experience in feedlot operation and bovine necropsy diagnosis consisting of 40 hours in bovine necropsy and 320 hours of an on-location practicum in a cattle feedlot. Pr.: Successful completion of the first-year professional curriculum in the College of Veterinary Medicine with a cumulative GPA of 3.0 or better and no grade below a C.	
CS 877 /D Crosslisted VCS877	2/G	Spring	3rd yr	Clinical Nutrition Lancaster Others: Hill's	(2) II. A focus on practical aspects of nutrition as it relates to performance, health and animal well-being of food-producing animals and, programs designed for health and well-being of small animals including exotic animals. Nutritional aspects of the mechanisms of health and disease are taught primarily at the individual and population level with some molecular and cellular aspects included. Designed for all students to be able to properly nourish animals in their care during their career. Pr.: Third-year standing in the College of Veterinary Medicine or graduate student.	Davis
CS 890 /O	Var/GR	All	Grad Student	Clinical Science Problems	(1-3) I, II, S. Advanced instruction in research topics and technologies, emphasizing various clinical disciplines. Pr.: DVM degree or dual degree student in the College of Veterinary Medicine.	Davis
CS 894 /D	3/G	Spring	Grad Student	Antimicrobial Resistance in Bacteria: Impact on Animal and Public Health Amachawadi, Apley, Dr. Nancy Hanson, Dr. Marilyn Roberts, Dr. Morgan Scott	(3) II. The course addresses issues of antimicrobial resistance (AMR) in bacteria in relation to antimicrobial use through an interdisciplinary approach that integrates animal, human, and environmental health. Pr.: Graduate Student	Amachawadi
CS 895 /O	1/G	Spring – Even yrs	Grad Student	Research Methods Mason, Roush, invited faculty	(1) I. Discussion of research design, grantsmanship, practical statistics, manuscript preparation, and ethics. Pr.: DVM degree or consent of department head.	K KuKanich
CS 896 /O	2/G	ALL	Grad Student	Advanced Topics in Clinical Ophthalmology I Meekins, A. Rankin	(2) I, II, S Designed to expose comparative ophthalmology residents to the source material associated with the ABVO certifying examination. Assigned textbook reading covers various topics from the major required textbook reading list. Meet weekly with faculty to guide the resident's	Meekins

					self-study, answer questions, and correct deficiencies. Pr.: Comparative Ophthalmology Resident at Kansas State University Veterinary Health Center and Graduate Student.	
CS 897 /O	2/G	ALL	Grad Student	Advanced Topics in Clinical Ophthalmology II Meekins, A. Rankin	(2) I, II, S Designed to familiarize comparative ophthalmology residents with the basic format of the ABVO certifying examination. The course will include written and image recognition examinations that collectively assess the students' comprehensive knowledge of clinical ophthalmology, including medical and surgical case management. Basic vision science concepts associated with embryology, anatomy, physiology, and optics will also be reviewed. Meet weekly to deliver mock examinations, including time to review the content, answer questions, and correct deficiencies. Pr.: Comparative Ophthalmology Resident at Kansas State University Veterinary Health Center and Graduate Student.	Meekins
CS 898 /O	2/CR	All	Grad Student	MS Report in Clinical Sciences	(2) I. II. S. A written report of either a laboratory-based research, a field-based research, or a review paper on a topic in the major field.	Nagaraja
CS 899 /O	1-6 /CR	All	Grad Student	Thesis Research/Clinical Sciences L. Beard, Davis	(1-6) I, II, S. Individual research in any of the fields of Clinical Sciences. Pr.: Graduate standing. This work may form the basis for the MS Thesis or the MS Report.	Davis