St. George's University

School of Veterinary Medicine

Curriculum Digest

SVM Curriculum Digest 2018

YEAR 1: TERM 1 REQUIRED COURSES

ANPH 501 Veterinary Histology and Embryology
(5 cr.) (Didactic 4 cr./Laboratory 1 cr.) This course begins with the study of cell structure and progresses through the basic tissues to the study of the organ systems. The histology not only provides the microscopic study of the body but also the correlation between structure and function. Knowledge of the normal structure is necessary to understand the study of abnormal (pathology), which deals with the alteration in the structure and function of the body tissues/organs caused by the disease process. The course also includes the sequence of normal development from gametogenesis and fertilization to the establishment of body form and the development of the fetal membranes, placenta, and various organ systems. Important developmental anomalies occurring in the domestic species, and their various mechanisms leading to these will be discussed.

ANPH 506 Veterinary Anatomy I
(5 cr.) (Didactic 3 cr./Laboratory 2 cr.) The course consists of a series of lectures on the general and systemic anatomy of the carnivores, the dog and cat. The lecture hall discussions (didactic lectures) will be accompanied by dissection of the cadavers in the laboratory. The laboratory sessions include through, step by step dissection of the dog and cat cadavers. Whenever necessary, appropriate clinical references and discussions will be incorporated while presenting the content in the class and laboratory session.

ANPH 512 Veterinary Physiology I
(5 cr.) (Didactic) In the DVM program, veterinary physiology is covered by two courses: ANPH512/DVM 1 and ANPH513/DVM2. Both courses focus on the fundamental mechanisms underlying normal function of cells, tissues, organs, and organ systems of animals, commensurate with the requirements for a physician providing primary care to a variety of veterinary patients. Students will integrate the acquired knowledge about physiological functions of organ systems and learn to explain mechanisms of whole-body homeostasis. Emphasis is placed on introducing the pathophysiology of diseases, which are commonly seen in veterinary practice. The ANPH512 course covers the following organ systems: nerve & muscle, cardiovascular, respiratory, and renal physiology.

LAMS 502 Veterinary Clinical Orientation
(1 cr.) (Didactic 0.33 cr./Laboratory 0.67 cr.) This course is designed to expose the first-term SGU veterinary student to the basics of physical examination and handling of domesticated species. In addition, pertinent information regarding breeds, colors, and special characteristics of common small and large animal species will be presented. The course utilizes the SGU Simulation Laboratory for introductory cardiac and thoracic auscultation prior to live- animal physical examination laboratory sessions. Veterinary Clinical Orientation provides the foundation for additional SGU clinical skills courses held throughout Terms 2 through 6.

LAMS 540 Basic Small Animal Nutrition
(1 cr.)(Didactic) This course provides an introduction into basic concepts of animal nutrition focussing on dogs and cats. It contributes to the foundation for other courses in the curriculum, such as small animal internal medicine and surgery. The course promotes a practical perspective regarding the different nutrient sources and additives used in the manufacture of pet food. The course includes the following main topics: 1) selection of diets based on an adequate balance of ingredients; 2) additives and energy requirements in a diet; 3) adjustment of nutritional requirements according to variables such as the age, breed, physical activity or physiological status of an animal; 4) nutritional assessment of commercial feed content; and 5) Safety issues regarding feed preparation and its storage.

LAMS 541 Professional Development I

(2cr.) (Didactic 1.4 cr/Lab 0.6 cr (Workshop & Small Group)) This course is the first of 6 courses within the curriculum focused on professional development. Through experiential learning methods including a 2-day workshop, students will be exposed to the concepts of non-technical attributes such as teamwork, communication, self and social awareness, and self-care that are vital to their success as a student and veterinarian. Specific coursework related to study skills, ethics, financial literacy and evidence based medicine is included. This course provides the foundation for their time at SGU; developing a sense of community within their class as they grow together into young professionals.

SAMS 501 Radiology I
(1 cr.) (Didactic 0.5 cr./Laboratory 0.5 cr.) This course covers the basic principles of radiographic image formation in didactic lecture, and is followed by a systems-based, case-based approach to small animal radiography of the thorax, abdomen, forelimb, hindlimb, vertebral column, and skull.

YEAR 1: TERM 2 REQUIRED COURSES

ANPH 503 Veterinary Anatomy II
(5 cr.) (Didactic 3 cr./Laboratory 2 cr.) The basis of this course is the comparative regional anatomy of the main domestic species of animals: horses, ruminants, pigs, and domestic poultry. The course also includes didactic and laboratory sessions in fish anatomy. Emphasis is placed on those topics that are of particular clinical or applied importance. Formal lectures are accompanied by dissection sessions, with appropriate reference to the living animal.

ANPH 504 Veterinary Pharmacology I
(3 cr.) (Didactic) This course describes the basic principles of pharmacology and the importance of pharmacokinetic and pharmacodynamic features of drugs and lays the foundation for the clinical application of veterinary medicinal products. The significance of correlating pharmacology with physiology provides a firm understanding of the subject concepts. This course aims to develop student's knowledge about the rational use of therapeutic drugs considering species variations and the drug's pharmacokinetic and pharmacodynamic features. Special emphasis will be given to the clinical use of drugs in both healthy and diseased animals, thereby analyzing species specific sensitivities and adverse/side-effects. In this course, students will be exposed to the basic principles of pharmacokinetics and pharmacodynamics that underpin drug use. Classes of drugs covered include, autonomic drugs, anesthetic agents, analgesic drugs, anticonvulsant drugs and anti-inflammatory drugs. Further, the therapeutic significance of hemostatic/anticoagulant drugs, anabolic steroids and the important segments of a prescription are detailed. With the clinical use of these drugs in mind, their characteristics and

prophylactic/therapeutic efficacy are explained, emphasizing the importance of ensuring the food safety and environmental bio-security.

ANPH 513 Veterinary Physiology II
(3 cr.) (Didactic) In the DVM program, veterinary physiology is covered by two courses: ANPH512/DVM 1 and ANPH513/DVM2. Both courses focus on the fundamental mechanisms underlying normal function of cells, tissues, organs, and organ systems of animals, commensurate with the requirements for a physician providing primary care to a variety of veterinary patients. Students will integrate the acquired knowledge about physiological functions of organ systems and learn to explain mechanisms of whole-body homeostasis. Emphasis is placed on introducing the pathophysiology of diseases, which are commonly seen in veterinary practice. The ANPH513 course covers the following systems: hematology (erythron; hemostasis); nervous system (i.p. the sensory nervous system); gastrointestinal system including fermenters; metabolism; endocrinology; and reproduction. This course also introduces independent group work, in which students are exposed to clinical case studies and give short oral presentations. Students share responsibility for a collectively earned group grade, and should demonstrate professional behavior including communication and team-working skills.

LAMS 542 Professional Development II
(2cr) (Didactic 1.6 cr/Lab 0.4 cr (Lab, Workshop/Self Study & Small Group)
This course is the second of 6 courses within the curriculum focused on professional development. Through experiential learning methods, students will be exposed to topics and skills related to personal development, self-care, ethics and animal welfare, communication skills, business and financial literacy, and evidence based veterinary medicine.

PTHB 503 Veterinary Bacteriology/Mycology
(4 cr.) (Didactic 3 cr./Laboratory 1 cr.) The introductory part of this course will deal with bacterial morphology, structure, cultivation, and general principles of diagnosis, pathogenesis, disease transmission, use of antimicrobial agents, disinfectants, and epidemiological concepts. In the next section major bacterial and fungal pathogens of veterinary importance causing disease in domestic and pet animals will be the focus. Included here are the morphological features, habitat, transmission, pathogenesis related to clinical signs, diagnosis, prevention, biosecurity and control of these pathogens. Zoonotic significance will be mentioned where applicable.

PTHB 512 Veterinary Immunology
(2 cr.) (Didactic) This course is designed to provide the student with an understanding of the basic principles and mechanisms underlying the immune system, with emphasis on the interaction between innate and acquired immunity in the response to infection and allergens, primary and secondary immune responses, immunodiagnostic tests, vaccines and interpretation of immunological data. In addition to didactic lectures students are provided with self-learning, problem solving case scenarios with follow-up discussions in class.

SAMS 502 Radiology II
(1 cr.) (Didactic 0.6 cr./Laboratory 0.4 cr.) The course covers the principles of radiographic image formation, radiation safety concerns, and normal radiographic anatomy of the horse and bovine, with labs using case-based systems-based examples.

SAMS 515 Veterinary Physical Diagnosis I
(1 cr.) (Didactic 0.33 cr./Laboratory-PBL 0.67 cr.) This course is a follow-up to Veterinary Clinical Orientation LAMS 502 and consists of a combination of didactic, hands-on and problem-based learning sessions focusing on small animal patients. This course expands the basic physical examination to include specialty examinations including orthopedic, neurologic, dermatologic, cardiovascular, respiratory,

gastrointestinal, urogenital, and ophthalmologic exams. The course reinforces skills such as restraint and handling, and also introduces topics such as injection skills, communication skills, clinical reasoning, and literature review. The laboratory exercises are tailored to provide the veterinary student with the opportunity to practice medical exams that are commonly performed in the everyday clinical setting. Use of the SGU Simulation laboratory allows students a more in-depth experience with cardiac arrhythmias, murmurs, and abnormal respiratory noises as they relate to commonly observed clinical case presentations.

YEAR 1: TERMS 1 AND 2 *ELECTIVE COURSES*

ELEC 501 Special Topics in Reptile and Amphibian Medicine
(1 cr.) (Didactic 0.67 cr./Laboratory 0.33 cr.) Students practice and master the clinical examination, disease diagnosis, and surgical/therapeutic approaches of reptiles and amphibians. Appropriate emphasis is placed on species- specific behavioral and physiological adaptations.

ELEC 512 Special Topics in Fish Medicine and Surgery
(1 cr.) (Didactic 0.67 cr./Laboratory 0.33 cr.) Students participate through practical clinical experience and perform a variety of medical and surgical techniques. Students master the art of clinical examination, disease diagnosis, surgical and therapeutic approaches for fish species. Appropriate emphasis is placed on species- specific behavioral and physiological adaptations.

YEAR 2: TERM 3 REQUIRED COURSES

ANPH 505 Veterinary Pharmacology II
(3 cr.) (Didactic) One of the main tasks of the veterinarian in every day practice is the application of veterinary medicinal products. To be able to responsibly administer drugs to animals, one needs thorough knowledge of pharmacodynamics (how drugs act) and pharmacokinetics (the movement of the drug through the body). Furthermore, the risks associated with drug administration, both for the animal or animal populations (food safety, adverse effects; toxicology) and for the environment (this includes the owner and the environment; environmental toxicity – "one-health" concept) needs to be carefully evaluated. In this course, students will develop a proficient working knowledge of anti-infective drugs and drugs acting on organ systems, including anticancer medication. The principals of drug therapy and the factors that influence the use of each medication in different species will be discussed. There is special attention for the clinical importance of drugs, their pharmacokinetics, pharmacodynamics and adverse effects, as well as for food safety and therapeutic decision making. Embedded in the lecture series are discussions on ethical dilemmas around the use of drugs (antimicrobial stewardship, cost effectiveness of medication, risks to the owner and the environment), and effective communication with owners and partners in the professional health care team.

LAMS 501 Veterinary Physical Diagnosis II
(1 cr.) (Laboratory-PBL) This 3rd term course, the corollary to LAMS 502 in term 1, is designed to instruct students in the fundamentals of physical diagnosis in the equine and bovine patient, utilizing a variety of techniques including hands-on laboratories, simulation laboratories and case-based teaching. Additional goals of the course include development of medical math skills, introduction of basic clinical competencies and musculoskeletal and gastrointestinal specific examination skills, to review common disease presentations of large animals and to introduce and practice clinical reasoning skills. Case simulation projects allow development of skills related to teamwork and communication.

LAMS 543 Professional development III
(2cr) (Didactic 1.6 cr/Lab 0.4 cr (Lab, Workshop/Self Study & Small Group)
This course is the second of 6 courses within the curriculum focused on professional development. Through experiential learning methods, students will be exposed to topics and skills related to personal development, self-care, ethics and animal welfare, communication skills, business and financial literacy, and evidence based veterinary medicine.

PTHB 505 Veterinary Parasitology
(4 cr.) (Didactic 3 cr./Laboratory 1 cr.) The course consists of lectures and laboratory classes covering the helminths, arthropods, and protozoa occurring as important parasites of domestic and wildlife species. A taxonomic approach is taken, but emphasis is placed on practical aspects such as the parasites' developmental cycles, clinical features, pathogenesis of disease, immunology, epidemiology, public health aspects, laboratory and clinical diagnosis, treatment, and control. Particular attention is paid to providing a host approach so that the parasites and their hosts are placed in context.

PTHB 506 Veterinary Pathology I
(4 cr.) (Didactic 3 cr./Laboratory 1 cr.) This course serves as an introduction to the discipline and service of veterinary pathology and is composed of didactic lectures mixed with active learning exercises and interactive clinical case investigations. Laboratory sessions utilize small group exercises and hands-on learning opportunities with animal tissues and/or simulations. The emphasis of this course is placed on the training and development of clinical proficiency, and thus, the overall goal of this course is to provide students with an understanding of veterinary disease as it relates to lesion development, clinical signs, diagnostic strategy, and clinical outcomes. Students will learn the fundamental mechanisms of tissue injury and disease (General Pathology) followed by a systematicapproach focused on individual organ systems and their respective diseases (Systems Pathology). The remaining sections of Systems Pathology are covered in the Term 4 course, PTHB 507 Pathology II.

PTHB 515 Veterinary Virology
(3 cr.) (Didactic) The course consists of giving veterinary students the biological background needed for the understanding of viral diseases. Veterinarians are confronted daily with viral infections. Because of this fact, it is essential to deal with these unique classes of infectious agents in detail. Students of veterinary medicine should have a thorough understanding of certain viruses and the major diseases of veterinary importance caused by them. This course is divided into general virology and systematic virology. General virology deals with the basic nature of viruses, classification, multiplication, host-virus interaction, viral pathogenesis, diagnosis and vaccines. Systematic virology deals mainly with individual viral diseases. The major viral diseases which are of importance for veterinary practice will be discussed affecting each host species of veterinary significance. This course will provide the basic understanding needed to deal with the viral infections usually encountered in the clinical veterinary practice

PTHB 532 Clinical Pathology
(4 cr.) (Didactic 3 cr./Laboratory 1 cr.) 1. Students gain an understanding of the principles of

hematology, cytology, and clinical chemistry in the course.
This introductory course is intended to provide the student with content, laboratory and critical thinking skills to: 1. identify explain pre-analytical and analytical aspects of laboratory analytes, 2. interpret laboratory data by being able to identify abnormalities using classifications and

propose pathologic states, physiologic conditions, or specific diseases that might cause the abnormalities, 3. describe the pathogenesis of the laboratory data abnormalities (the series of events that lead to the disease or pathologic state and abnormal laboratory data), 4. identify cells microscopically or digitally or abnormalities in cells that are of diagnostic importance including microscopic features of cells in blood films, cavitary effusions, and aspirates from lesions in tissues (marrow, lymph nodes, & common inflammatory or neoplastic lesions. Clinical cases are incorporated into the lectures and laboratories to emphasize correct interpretation of laboratory data.

YEAR 2: TERM 4 REQUIRED COURSES

LAMS 503 Introduction to Clinical Medicine
(4 cr.) (Didactic) This course is designed to introduce fourth-term students to the practice of clinical medicine. It is a team-taught course where presenting complaints, history, clinical signs, physical examination, and specific diagnostic testing is used to design problem lists, differential diagnoses, and introduce veterinary methods for case workup. Individual student assignments utilize practical case evaluation and use of current research via electronic journals for support of case evaluation. This course provides the foundation to the third-year courses that specifically cover small animal, equine, and food animal medicine.

LAMS 547 Professional Development IV
(2cr) (Didactic 1.6 cr/Lab 0.4 cr (Lab, Workshop/Self Study & Small Group)
This course is the second of 6 courses within the curriculum focused on professional development. Through experiential learning methods, students will be exposed to topics and skills related to personal development, self-care, ethics and animal welfare, communication skills, business and financial literacy, and evidence based veterinary medicine.

LAMS 548 Introduction to livestock nutrition
(1cr) (Didactic 0.8cr/Lab 0.2cr) This course is structured to provide coverage of the fundamental aspects of animal production systems. basic composition of feeds and the constituents of feed that supply nutrients and energy to livestock. The practical component of this course will help students to provide hands on skills and apply nutritional information into feeding of live stock (including horses). This course is designed to give students a broad understanding of how nutrition is related to animal health. production and performance of different live stock species at various stages of production cycles based on energy requirements. Each of the basic nutrition concepts will be discussed in relation to its importance to overall health. Animal Nutrition is included in the veterinary curriculum to aid students in understanding the relationship between nutrients in feeds and the health of domestic animals. It gives you a basic perspective of how we manipulated nutrition for production/performance characteristics and gives you an understanding of abnormalities that may arise during that process.

PTHB 507 Veterinary Pathology II
(5 cr.) (Didactic 4 cr./Laboratory 1 cr.) This course completes the systemic pathology of domestic animals with emphasis on the etiology, pathogenesis, gross and microscopic lesions, and diagnosis of diseases of the organ systems in the body. Formal classroom lectures are complemented with laboratory classes and necropsy demonstrations aimed at interpretation of gross and microscopic lesions.

PTHB 510 Veterinary Public Health
(2 cr.) (Didactic) This course is designed to provide students with the required background knowledge to the One Health approach that will equip them in their role as veterinarians in protecting the public health. Foodborne illness derived from meats of animal origin and emerging zoonoses impacting the

global environment, uniquely positions veterinarians as guardians of animal and human health. They are responsible for educating the public and assisting the relevant public health authorities in implementing prevention and control measures regarding diseases of animal origin that impact human health. The course covers the veterinarians' role in regulatory medicine regarding inspection of animals for food for human consumption and deals with important zoonoses currently encountered in the global environment. The course uses a combination of advanced turning point combined with practical cases for class discussion to assist the student in knowledge application

PTHB 511 Veterinary Epidemiology
(1 cr.) (Didactic) This course is designed to provide students with the epidemiological principles that can be applied to clinical veterinary medicine and is a core course introducing important concepts for the Veterinary Public Health course that it precedes. Students will gain knowledge on the use of epidemiological principles in evaluating clinical studies and the importance of evidence-based medicine in evaluating the efficacy of therapeutic and preventive measures. The course is also concerned in arming students with the tools that apply to the evaluation of biological disasters of animal origin that impact human health and understanding the important role of the veterinary surgeon in responding to such disasters. Epidemiology is a cornerstone of public health and the practice of preventive medicine in populations and hence requires the student to have a solid foundation in the basic science courses

PTHB 516 Avian, Fish, and Exotic Animal Diseases
(4 cr.) (Didactic 3 cr./Laboratory 1 cr.) This course focuses on the etiology, pathogenesis, diagnosis, and treatment of the important diseases in domestic poultry, pet avian, and exotic animal species that are commonly encountered as pets and used for laboratory purposes (including reptiles, amphibians, rabbits, small rodents, ferrets, etc.). Strategies for species management, handling and disease prevention are emphasized. The course deals with various aspects of aquaculture, including food fish, pet fish, and public display aquaria.

SAMS 514 Introduction to Surgical Skills
(1 cr.) (Didactic 0.33 cr./Laboratory 0.67 cr.) The course is an introductory surgical course designed to offer the student instruction in both the theory and practice of veterinary surgery which will serve to prepare the student for subsequent courses in veterinary surgery and beyond. Didactic instruction focuses on theoretical surgical principles: asepsis, sterilization & disinfection; surgical instrumentation and surgical techniques; surgeon and patient preparation; suture materials and surgical needles; and hemostasis, wound healing and wound management. Practical surgical skills that are mastered during the laboratory sessions include knot tying, suture patterns (skin and hollow organ), ligatures, surgical drape application, and bandaging. Students are provided opportunities to practice surgical skills using both hollow organ tissue specimens, simulation models (i.e., skin and intestine), and knot tying boards.

SAMS 520 Veterinary Anesthesiology
(3cr.) (Didactic2.5cr./Laboratory0.5cr.) In the didactic portion of this course, students gain an understanding of the principles, concepts, drugs and techniques utilized for sedation, anesthesia, and analgesia in various small and large animal species. Laboratory sessions provide the opportunity to master equipment use (anesthetic machines, monitoring devices etc.) necessary for providing safe anesthesia. The SGU Simulation Laboratory is used to practice and gain comfort with endotracheal intubation, intravenous catheter placement, drug calculations and video simulations to familiarize the student with the application of anesthetic and analgesic drugs.

YEAR 2: TERM 4 *ELECTIVE COURSES*

All Year 1: Terms 1 and 2 elective courses listed above are available to Year 2: Terms 3 and 4 students. In addition, the following elective course is available to Term 4 students:

ELEC 511 Large Animal Clinical Parasitology
(2 cr.) (Didactic 0.5 cr./Laboratory 0.5 cr.) The course focuses on the biology, epidemiology, and control of clinically important nematode parasites of ruminants and horses. Emphasis is placed on clinical and diagnostic issues relating to host-parasite interactions and the development of evidence-based parasite control programs. This course covers broad issues relating to host- parasite interactions, parasite epidemiology, parasite diagnosis, and the development of drug resistance.

YEAR 3: TERM 5 REQUIRED COURSES

LAMS 516 Large Animal Surgery 1
(2 cr.) (Didactic) This is part 1 of the 2-part Large Animal Surgery course series. It aims to introduce students to surgical conditions, including trauma, encountered in livestock animals (bovine, porcine, caprine and camelids) and equine species in terms of pathogenesis, diagnosis, treatment, prognosis and management. Emphasis will be placed on the clinical approach to evaluate, diagnose and treat the patient, as well as up-to-date therapeutic opportunities and prognosis where available. Clinical reasoning with be honed using case-based scenarios, which in addition will encourage better in-depth learning of the material. Mastery of material presented in this course will prepare students for 4th year rotations, the NAVLE board exam, and veterinary practice after graduation.

LAMS 519 Theriogenology
(4 cr.) (Didactic 3.5 cr./Laboratory 0.5 cr.) Students are instructed in the diseases affecting the male and female reproductive systems of the large and small domestic mammals. Causes and treatment of male and female infertility are considered, as are obstetrical procedures in normal parturition and in dystocia. Techniques involved in breeding, artificial insemination, and embryo transfers are reviewed along with methods for determination of pregnancy in various species.

LAMS 544 Livestock Medicine I
(2cr) (Didactic) This course is part 1 of the 2 part Livestock Medicine course series. The principles of diagnosis, treatment, and prevention of diseases of bovine, ovine, caprine, swine, and camelids, are taught utilizing a lecture format with integrated case discussions to illustrate the context and application of material presented and to promote development of problem-solving skills. Individual and herd medicine and the role of the veterinarian in promotion of a healthy food supple are addressed. Mastery of material presented in this course will prepare the student for 4th year clinical rotations, the North American Veterinary Licensing Examination, and veterinary practice after graduation. This course will continue to build on the livestock topics presented in earlier courses.

LAMS 549 Professional development V
(2cr) (Didactic 1.6 cr/Lab 0.4 cr (Lab, Workshop/Self Study & Small Group) This course is the second of 6 courses within the curriculum focused on professional development. Through experiential learning methods, students will be exposed to topics and skills related to personal development, self-care, ethics and animal welfare, communication skills, business and financial literacy, and evidence based veterinary medicine.

SAMS 513 Diagnostic Imaging
(3 cr.) (Didactic 2.75 cr./Laboratory 0.25 cr.) Principles of radiography are reviewed, including the various potential hazards of radiation. Radiographic imaging techniques utilized in small and large animal species are described along with other imaging methods such as ultrasonography, CT, and MRI as well as the basic principles/practices of radiation therapy. In small- group film-reading sessions, students practice proper interpretation of radiographs.

SAMS 518 Small Animal Surgery
(4 cr.) (Didactic) The introductory portion of the course reviews principles of surgery, including asepsis, instrumentation, and surgical techniques, plus approaches to the different body cavities. The remainder of the course covers the management and treatment of surgical conditions for small companion animals, including soft tissue, orthopedic, neurologic, and ophthalmic conditions. Introduction to dentistry is also covered in this course.

SAMS 522 Small Animal Medicine I
(3 cr.) (Didactic) Students are introduced to concepts concerning the diagnosis, treatment, and management of medical diseases in dogs and cats. Emphasis is placed on infectious diseases, dermatology, hematologic and immune mediated diseases, renal, and respiratory diseases, and emergency/critical care medicine.

SAMS 526 Introduction to Clinical Practice
(1 cr.) (Laboratory) This course is comprised of 3 shifts at the Small Animal Clinic and 1 session of simulated client communication. As a continuum of the POMR skills learned in SAMS 515 and LAMS 503, the student practices and refines methods of incorporating physical examination, historical information collection, and development of problem lists based on current clinical cases from the Small Animal Clinic. Creation of the medical record and the importance of clinical practice management are discussed and practiced by the student. Simulated client interactions allow students to engage in case scenarios, practicing the skills necessary for effective communication as outlined by the Calgary Cambridge Guide. The communication sessions allow for practice in providing and accepting effective feedback.

SAMS 527 Junior Surgery and Anesthesiology Laboratory
(2 cr.) (Laboratory) This is a hands-on, faculty supervised, surgery and anesthesia clinical skills course. Students will be divided into teams of four (rotating as primary surgeon, assistant surgeon, scrub nurse and anesthetist) and will be expected to apply knowledge gained from previous courses (SAMS 520/SAMS 514) and concurrent courses (SAMS 518/LAMS 519). Students will be expected to maintain medical records using the SOAP format. Students will practice communication skills by presenting in pre-surgical and pre-anesthetic rounds. Rounds will include presentation of physical examination and bloodwork findings, diagnostic procedures and treatment plans, as well as discussions related to infectious diseases with/without zoonotic potential. Anesthetic protocols and the surgical plan for either a spay or a neuter in client-owned surgical candidates will be reviewed. Part of the student team will induce, maintain, and monitor anesthesia, while the rest of the team will perform canine sterilization surgical procedures while applying aseptic technique principles. Students will maintain medical records for every patient, including the writing of surgery and anesthesia reports, postoperative treatment plans, discharge instructions, and will perform pain management assessments. Once surgical patients are discharged, students will communicate effectively with clients by making follow up phone calls to discuss medications sent home and answer any questions. Additionally, basic orthopedic procedures will be demonstrated by faculty and practiced by students utilizing bone models. Basic ophthalmology and dentistry clinical skills and diagnostic procedures, including dental radiology, will be performed by the students under faculty guidance.

YEAR 3: TERM 6 REQUIRED COURSES

ANPH 520 Veterinary Toxicology
(2 cr.) (Didactic) A vast number of substances potentially toxic to animals exist, including pesticides, household cleaning products, agricultural chemicals, automotive products, human prescription and non-prescription drugs, herbal remedies, and poisonous plants and animals. With such huge numbers of potential toxins, it is impossible for veterinarians to be knowledgeable about all of them. But because some poisonings can cause illness or even death within only minutes to hours after exposure, immediate access to reliable information on diagnosis and treatment is essential. Often intoxications involve new drugs or chemical products for which very little or no published veterinary toxicity data is available. Standard veterinary medical textbooks usually include information on only the more common toxins. Even texts devoted specifically to toxicology cannot provide information on all toxins in all species. Information

gained from product manufacturers or human poison control centers often pertains to human exposures only. Because of wide metabolic and physiological differences between species, it is rarely appropriate to extrapolate toxicity data from humans to other species. Veterinary toxicologists at veterinary colleges can provide valuable information on many toxicants, but as with many manufacturers, are often available only during routine office hours. Therefore, it is important that veterinarians be aware of the variety of additional toxicological information sources available.

CLIN 541 Boards Preparatory Course
(1 cr) (Didactic 0.4 cr/Lab 064 cr (Self Study & Small Group) The purpose of this course is to prepare students for their year 4 self-guided li-censing boards study period. The course will provide students with the support and skills to create their own study plans, self-assess, and self-monitor their studying. The course will also familiarise students with the resources that are available for them, and to the procedures of registering for and taking the NAVLE®.

LAMS 505 Equine Internal Medicine
(3 cr.) (Didactic) This course is designed to familiarize the 3rd year student with the etiology, pathophysiology, epidemiology, clinical presentation, diagnostic evaluation, and treatment of commonly-observed equine diseases. Emphasis is placed on the clinical approach for evaluation, diagnosis, and treatment of the sick equine patient (both chronic and emergent), as well as up-to- date therapeutic opportunities available to equine veterinarians as detailed in the current scientific literature. Herd health issues, the importance of client education, biosecurity and euthanasia issues are discussed.

LAMS 515 Livestock Medicine II
(3 cr.) (Didactic) This course is part 2 of the 2 part Livestock Medicine course series. The principles of diagnosis, treatment, and prevention of diseases of bovine, caprine, ovine, swine and camelids, are taught utilizing a lecture format with integrated case discussions to illustrate the context and application of material presented and to promote development of problem-solving skills. Individual and herd medicine approaches are addressed. Mastery of material presented in this course will prepare the student for 4th year clinical rotations, the North American Veterinary Licensing Examination, and veterinary practice after graduation. This course will continue to build on the livestock topics presented in earlier courses. Materials will covered through lectures, group discussions, and case-based discussions.

LAMS 533 Professional Development VI
(2cr) (Didactic 1.6 cr/Lab 0.4 cr (Lab, Workshop/Self Study & Small Group)
This course is the second of 6 courses within the curriculum focused on professional development. Through experiential learning methods, students will be exposed to topics and skills related to personal development, self-care, ethics and animal welfare, communication skills, business and financial literacy, and evidence based veterinary medicine.

LAMS 545 Large Animal Surgery II
(2 cr.) (Didactic) This is part 2 of the 2-part Large Animal Surgery course series. It aims to introduce students to surgical conditions, including trauma, encountered in livestock animals (bovine, porcine, caprine and camelids) and equine species in terms of pathogenesis, diagnosis, treatment, prognosis and management. Emphasis will be placed on the clinical approach to evaluate, diagnose and treat the patient, as well as up-to-date therapeutic opportunities and prognosis where available. Clinical reasoning with be honed using case-based scenarios, which in addition will encourage better in-depth learning of the material. Mastery of material presented in this course will prepare students for 4th year rotations, the NAVLE board exam, and veterinary practice after graduation.

LAMS 533 Professional Veterinary Development
(2 cr.) (Didactic 0.5 cr./Other 2.5 cr.) This course is a continuation of the Term 1 ANPH 516. Non-technical skills introduced and practiced in this course are essential in order to develop into a

competent and successful veterinarian and a leader in the community. Emphasis of these attributes and concepts at the end of the SGU didactic DVM curriculum provides students with an opportunity to practice these skills prior to beginning their clinical year and prepare the students for their professional career. Emphasis is placed on veterinary business practices, conflict management, client communication, giving and receiving feedback, preparing to enter the workforce and financial literacy.

SAMS 524 Small Animal Medicine II
(4 cr.) (Didactic) Students are introduced to concepts concerning the diagnosis, treatment, and management of medical diseases in dogs and cats. Emphasis is placed on cardiology, respiratory, neurological, oncological, endocrine, hepatic and gastrointestinal diseases, and emergency and critical care medicine.

SAMS 528 Introduction to Clinical Rotations
(2 cr.) (Clinical Rotation) Introduction to Clinical Rotations allows our 6th Term SVM students to rotate through Large Animal Ambulatory Services, Small Animal Medicine, Surgery, and Anesthesia, diagnostic rotations such as Clinical Pathology, Necropsy, Radiology, and Parasitology, as well as an introduction to Shelter Medicine and Emergency & Critical Care. The purpose of this course is to promote clinical proficiency and professionalism. Students will be exposed to a wide variety of clinical cases throughout these different rotations. The course will be highly interactive as it will be taught in a small group setting. Students will be interacting with several faculty members from different departments within the School of Veterinary Medicine.

YEAR 3: TERM 6 *SELECTIVE COURSES*

Year 3, Term 6 students are offered a variety of specialty courses. Sixth-term students select two of the following one-credit courses for their final semester of preclinical course work.

ANPH 518 Vet. Acupuncture Analgesia: A Scientific Basis
(1 cr) (Didactic /Laboratory) Traditional Chinese Medicine, including acupuncture is based on philosophical principles that are difficult to accept for western trained practitioners. This can lead to the rejection of acupuncture as an otherwise low-risk and useful clinical technique. To overcome this hesitation, this course offers students and introduction into the scientific background of canine acupuncture aka medical or neurofunctional acupuncture. Contemporary medical research and understanding of neuroanatomy and neurophysiology will provide the rationale to integrate acupuncture into veterinary practice. Students are encouraged to begin to design treatment plans and apply acupuncture for the management of pain in some of the major orthopedic dysfunctions seen in canine practice.

LAMS 537 Special Topics in Equine Practice
(1 cr.) (Laboratory) This course provides an opportunity for equine-oriented students to work through commonly encountered disorders found in equine general practice. There will be individual and group research opportunities, small group discussions as well as hands- on laboratories. Students should become familiar with commonly observed practice problems with focus on evidence-based clinical therapies in equine medicine today.

LAMS 539 Production Animal Medicine and Surgery
(1cr) (Laboratory) This course is amined at students with an interest in production animal medicine. The goal is to expose students to relevant topics in more depth and givev them the opportunity to have some hands-on experience to learn common skills in the field. The course is taught through a combination of group discussions, wet labs, role play and case studies. They will be required to present a case-study in a small group as well as show professional behavior throughout the course.

PTHB 543 Special Topics in Zoological and Aquaria Medicine

SAMS 530 Clinical Reasoning in Veterinary Medicine
(1 cr) (Didactic) The course will provide students with the opportunity to integrate information from other courses through utilizing the clinical reasoning approach. Case reports or clinical scenarios will be presented to students using the clinical reasoning approach. Students will professionally communicate and will create relevant differential diagnosis lists, diagnostic plans, treatment plans, and/or other clinical case management components as specified.

SAMS 535 Advanced Topics in Dermatology
(1 cr.) (Didactic 0.4 cr./ Laboratory 0.6 cr.) This selective course provides students with an opportunity for advanced training in clinical dermatology through the use of didactic lectures, clinical case discussions, and wet labs with an emphasis on the clinical approach to a dermatologic case. It is designed to enhance the student's knowledge of Small Animal Dermatology and will build upon the foundations of veterinary dermatology laid in Terms 2, 4 and 5 (SAMS515, LAMS503 & SAMS522). The course will focus on the diagnosis and management of small animal dermatologic disease and will also provide the student with an opportunity to further enhance their diagnostic capabilities through the use of wet labs and clinical experience. The course will be delivered through a collaborative effort between SVM faculty and a visiting veterinary dermatologist. Use of peer-reviewed literature will be encouraged to enable students to familiarize themselves with the current literature in veterinary dermatology.

SAMS 536 Special Topics in Emergency Critical Care
(1 cr.) (Didactic 0.7 cr. /Laboratory 0.3 cr.) This course provides an introduction into ECC topics, including small and large animal medicine. Laboratories (both live and simulated) demonstrate

common diagnostics and procedures used in small animal critical care medicine, including AFAST/TFAST, central line placement, and CPCR.

SAMS 539 Shelter Medicine
(1 cr.) (Didactic 0.8 cr. /Laboratory 0.2 cr.) The course will introduce students to the concept of Shelter Medicine and increase their knowledge of this emerging field, including such topics as herd health population management, disaster preparedness, public health, disease prevention, and zoonosis, population control, animal welfare, behavior assessment and modification, euthanasia protocols and compassion fatigue. The field of shelter medicine is recognized by the AVMA as a specialty and valued for the benefits it can provide to animals, people, and the surrounding communities. The course will empower students with tools, resources, and skills to best practice shelter medicine in a variety of clinical settings upon graduation, following the Association of Shelter Veterinarians (ASV) guidelines. The course will also present new career opportunities, both domestic and foreign, in the field of shelter medicine, such as non-profit community outreach programs, behavior consultation, animal welfare, ethics, and advocacy, and veterinary forensics. The course is taught through interactive lectures and wet labs. The student will be required to review a scientific journal article in written format and give a final presentation in a group format to demonstrate teamwork and effective communication skills.

SAMS 540 Radiology: The Clinical Experience
(1cr)(Didactic 0.5cr/Lab 0.5cr) At the end of the course the student should be able to competently interpret and comment on common radiographic presentations of clinical disorders that s/he will encounter on the first day in clinical practice. The basic principles of how image formation and interpretation are reapplied building on SAMS 501 and SAMS 502 knowledge. Students should be familiar with the standard projections, the anatomy they demonstrate and how they are obtained. The course does offer the theoretical and practical basis for learning and understanding the basics of diagnostic imaging that is applied in daily veterinary practice. This course builds on the knowledge gained from SAMS 513 Diagnostic Imaging.

YEAR 3: TERMS 5 AND 6 *ELECTIVE COURSES*

All Year 1: Terms 1 and 2 elective courses and Year 2: Term 4 elective courses listed above are available to Year 3: Terms 5 and 6 students.

YEAR 4: TERMS 7, 8, AND 9 REQUIRED CURRICULUM

Year 4 consists of 48 weeks of clinical training at one of our 29 affiliated AVMA-accredited veterinary schools: 20 weeks of instruction in seven core subjects and 28 weeks of electives that may be a continuation of core subjects or concentrations in select specialties. The clinical core subjects include a minimum of four weeks each in small animal medicine and small animal surgery, six weeks of large animal medicine and surgery; and two weeks each in diagnostic laboratory, clinical anesthesiology, and diagnostic imaging. The remaining weeks of the clinical program are made up of elective rotations (clinical rotations) and externships approved by the affiliated schools.

Graduate School Courses

The courses listed below are intermittently offered to graduate students, DVM students enrolled in a dual degree or the VSRI program and to any veterinary student as an elective. A complete listing of all graduate courses can be obtained via the SGU Graduate School.

ELEC 502 Introduction to Wildlife Conservation Medicine
(1 cr.) (Didactic 0.8 cr./Laboratory 0.2 cr.) This course encompasses formal lectures, interactive sessions, and practical work with special emphasis on field and in situ investigations.

ELEC 504 Captive Wildlife Management I (Mammals)
(1 cr.) (Didactic 0.8 cr./Laboratory 0.2 cr.) This course introduces students to principles of captive wildlife management from the viewpoint of a veterinarian. Concepts which are essential to the successful management of wild mammals in captivity are taught in didactic lectures and interactive sessions and will include aspects of: (1) husbandry such as housing, nutrition and behavioral requirements, (2) major diseases including zoonoses, their prevention and control, and (3) principles of manual and chemical restraint and anesthesia.

ELEC 505 Captive Wildlife Management III (Birds)
(1 cr.) (Didactic) This course introduces students to principles of captive wildlife management from the viewpoint of a veterinarian. Concepts which are essential to the successful management of wild birds in captivity are taught in didactic lectures and interactive sessions and includes aspects of: (1) husbandry such as housing, nutrition and behavioral requirements, (2) major diseases including zoonoses, their prevention and control, and (3) principles of manual and chemical restraint and anesthesia.

ELEC 506 Practical Applications of Molecular Assays
(2 cr.) (Didactic 0.5 cr./Laboratory 0.5 cr.) This course provides basic information and experience in developing and utilizing standard and real-time PCR and RT PCR techniques in detection and diagnosis of infectious diseases.

ELEC 507 Study Skills for Veterinary Medical Education
(1 cr.) (Didactic) Students are exposed to factors affecting success in veterinary medical school and metacognition groups/teams/questioning. It includes assessment of learning in courses and self-assessment as a learning strategy, examination techniques, learning styles and approaches to learning, application of learning styles, and learning strategies for basic science courses, as well as veterinary medical problem solving for clinical cases. Multiple-choice test-taking skills are discussed.

ELEC 508 Captive Wildlife Management II (reptiles)
(1 cr.) (Didactic) This course introduces students to principles of captive wildlife management from the viewpoint of a veterinarian. Concepts which are essential to the successful management of reptiles and amphibians in captivity are taught in didactic lectures and interactive sessions and will include aspects of: (1) husbandry such as housing, nutrition and behavioral requirements, (2) major diseases including zoonoses, their prevention and control, and (3) principles of manual and chemical restraint and anesthesia.

ELEC 509 Diseases of North American Wildlife I
(1 cr.) (Didactic) This course focuses on common North American wildlife species from the viewpoint of a veterinarian involved in their management. The impact of transmission of wildlife diseases on human and domestic animal health are addressed and interactions between diseases, environment, and population management are highlighted.

ELEC 510 Diseases of North American Wildlife II
(1 cr.) (Didactic) This course focuses on common North American wildlife species from the viewpoint of a veterinarian involved in their management. The impact of transmission of wildlife diseases on human and domestic animal health are addressed and interactions between diseases, environment and population management are highlighted. Families of wildlife in part two of this course are felines, fur-bearing mammals, rodents, lagomorpha, and birds.

ELEC 513 Bioethics Today
(1 cr.) (Didactic) This course is designed for students with an interest in bioethics who want to further develop their knowledge and professional competencies. It deals with newsworthy topics including public health, medicine, professionalism, research, veterinary medicine, and others.

ELEC 514 Forensics for First Responders
(1 cr.) (Didactic) This course serves as an introductory course of forensic procedures as they may be needed by a health care or law enforcement professional. Future physicians, veterinarians, public health officials or law enforcement personnel will study the underlying principles and concepts of modern forensic procedures with emphasis on preservation of evidence and securing of crime scenes, and proper maintenance of the chain of custody in dealing with crime scene evidence.

ELEC 515 Wildlife Parasitology
(1 cr.) (Didactic) This course introduces students to major parasites of wildlife species of North America. Parasitic life cycles are presented on major nematodes, cestodes, trematodes, blood protozoans and ectoparasites. Emphasis is placed on those common parasites which cause diseases in wildlife and/or are of major zoonotic importance.

ELEC 517 Special Topics in Research
(1 cr.) (Other) Students are provided an opportunity to receive course credit for work performed in specific areas of research or other related veterinary medical interest. This participation may take place within the SGUSVM research program or off-campus during the summer/winter school break alongside a veterinary researcher. Approval of the overall project as well as approval of the principle investigator/veterinarian and assignment of course credit is made by the appropriate SGU academic program director and the SGU associate dean of research.

ELEC 518 Special Topics in Research
(2 cr.) (Other) Students are provided an opportunity to receive course credit for work performed in specific areas of research or other related veterinary medical interest. This participation may take place within the SGUSVM research program or off-campus during the summer/winter school

break alongside a veterinary researcher. Approval of the overall project as well as approval of the principle investigator/veterinarian and assignment of course credit is made by the appropriate SGU academic program director and the SGU associate dean of research.

ELEC 519 Special Topics in Research
(3 cr.) (Other) Students are provided an opportunity to receive course credit for work performed in specific areas of research or other related veterinary medical interests. This participation may take place within the SGUSVM research program or off-campus during the summer/winter school break alongside a veterinary researcher. Approval of the overall project as well as approval of the principle investigator/veterinarian and assignment of course credit is made by the appropriate SGU academic program director and the SGU associate dean of research.

ELEC 520 Special Topics in Research
(4 cr.) (Other) Students are provided an opportunity to receive course credit for work performed in specific areas of research or other related veterinary medical interest. This participation may take place within the St. George's University School of Veterinary Medicine research program or off-campus during the summer/winter school break alongside a veterinary researcher. Approval of the overall project as well as approval of the principle investigator/veterinarian and assignment of course credit is made by the appropriate SGU academic program director and the SGU associate dean of research.

ELEC 521 Wildlife Casualties
(1 cr.) (Didactic) This course introduces students to the critical care of injured wildlife. With the principal aim of release of successfully treated wild animals back into their natural environment, this course links aspects of rehabilitation work with those of veterinary care. Relevant medical issues are addressed with an emphasis on ethical and legal implications of dealing with wildlife species.

ELEC 522 Veterinary Disaster Emergency Management
(2 cr.) (Didactic 0.67 cr./Other 0.33 cr.) This course covers the background and basic training needed for veterinary responders in natural and human-made disasters. Topics covered include animal and public health in disasters; the veterinarians role in preparation response, liability, and legal issues; local, federal, and global organizations involved in disaster planning and response; decontamination; water/foodborne illnesses, pets, zoonoses; animal disease outbreaks; carcass disposal; crisis communication; human and animal bond. One-third of the course is dedicated to small-group assignments/ presentations involving animal issues in disasters and recommended preparedness/responses.

ELEC 523 Special Topics in Avian Medicine and Surgery
*(1 cr.)(Didactic0.67 cr./Laboratory0.33 cr.)*Students learn general clinical and medical procedures through active participation with live animals. Surgical procedures typically used in clinical practice are presented using instructor- facilitated review and discussion of videotapes from actual clinical cases. Emphasis is placed on species-specific behavioral and physiological adaptations of birds as they relate to clinical practice.

ELEC 524 Culture and the Practice of Medicine
(1 cr.) (Didactic) This course discusses the relationship between culture, illness and disease, and the cultural environments of both biomedical and traditional healers: the ways cultural beliefs and behaviors influence the emergence, spread, incidence, prevention and control of diseases, are emphasized. Culture-specific and culture- impacted disease problems are used as examples and focus on, but are not limited to, infectious diseases that influence the practice of both human and veterinary medicine, such as Ebola, SARS, Chagas disease, and avian influenza.

ELEC 527 Special Topics in Small Mammal Medicine and Surgery
(1 cr.) (Didactic 0.67 cr. / Laboratory 0.33 cr.) This course introduces fundamental concepts and methods of small mammal medicine and surgery, emphasizing practical clinical applications through the use of interactive lecture and laboratory format. Students will perform a variety of techniques to encourage mastery of clinical examinations, disease diagnosis, and surgical/therapeutic approaches.

ELEC 532 Topics in Veterinary Entomology
(1cr.) (Didactic 0.9 cr. / Laboratory 0.1 cr.) The goal of this course is to introduce the biology, epidemiology and control of insects and other arthropods of veterinary significance. One of the course requirements is for students to compile a written review of contemporary research literature on a specific insect-veterinary problem. This review is to include the current understanding, diagnosis, prevention/control/treatment strategies and a rationale for further research in this area. At the end of the course students deliver an oral presentation on their findings.

Global Veterinary Medicine Track

Within the ethos of SGU we support a global aspect to one health, one medicine. To this end SGU has developed a Global Health Track which is the same as our regular DVM program but has extra components as follows:

PTHB 539 Transboundary Disease
(1 cr.) (Didactic) This course provides for an understanding of epidemiology in an increasingly mobile world for animals and people. To increase the health and welfare of people and animals there needs to be an understanding of the causes of pathology due to infectious disease; then treatment can be more efficacious.

PTHB 537 Veterinary Public Health: A Global Prospective
(1 cr.) (Didactic and Laboratory) An emphasis is given to public health within Europe covering abattoir management, pathology, legislation, food hygiene and meat inspection for the main species. A placement is required within Europe at an abattoir.

PTHB 540 Extra Mural Studies (EMS)
(3 cr.) Students are required to complete 36 weeks of externships in animal rearing facilities, veterinary practices or research institutions during vacation times. Students will be exposed to hands on professional practice and their skills developed in parallel with academic learning.

The Global Veterinary Medicine Track is inspired by veterinary degrees in the UK, which are regulated by the Royal College of Veterinary Surgeons. This track is ideal for those students wishing to work in Europe, especially the UK or to prepare themselves for practical professional work anywhere in the world due to the large component of EMS. Students wishing to sit the RCVS statutory examination are heartily encouraged to study this track; applications for admission are through the Office of Enrollment Planning.

The Global Veterinary Medicine Track is at the same cost as the DVM. Due to the rigorous nature of this track, especially the EMS component, students should be conscious of this and will be selected accordingly by the office of Enrollment Planning.