

Potential Research Concepts for VetSRA Summer 2021

Faculty Mentor	Faculty Email Address	Research Topic
Department: Biomedical Sciences		
Dr. Paul Bernard	pbernard@upei.ca	<p><i>Do deficits in auditory communication underlie social abnormalities associated with autism? Funded by the National Institute of Health (NIH).</i></p> <p>It is unknown if abnormal auditory communicative function contributes to the social deficits associated with autism spectrum disorders. A behavioral testing paradigm to thoroughly assess auditory communicative deficits associated with neurodevelopmental disorders is lacking. Goal: <u>We will develop a behavioural test battery to assess auditory communication in clinically relevant rodent models of autism.</u> Our studies may suggest that targeting auditory processing is a viable strategy to rescue social deficits associated with autism.</p> <p><i>Ultrasonic vocalizations: A non-invasive ethologically relevant tool to assess home cage welfare in rats.</i></p> <p>We propose to monitor rat ultrasonic vocalization frequency and call pattern, as an ethologically sensitive measure to assess rat welfare in various levels of home cage enrichment. We will compare this novel method of assessing home cage rodent stress/welfare to a traditional metric of rodent stress; fecal cortisol levels. Demonstrating that ultrasonic vocalizations can be used to assess home cage wellbeing will be a major advance in laboratory animal care.</p>
Department: Companion Animals		
Dr. Lara Cusack	lscusack@upei.ca	<p><i>Analysis of 4-aminopyridine toxicity in pigeons (Columbia livia) presenting to a wildlife rehabilitation service:</i></p> <p>A retrospective survey of Avitrol cases in pigeons (and possibly non target avian species) presenting to the AVC which will include review of clinical signs, mortality/recovery rates, and post mortem findings; may include participation in new cases presenting to the service.</p>
Dr. Katie Hoddinott Dr. Adam Ogilvie	khoddinott@upei.ca aogilvie@upei.ca	<p><i>Correlation of MISTELS training to quality of laparoscopic instrument movement</i></p> <p>A summer research assistant would aid in recruitment, data collection and analysis of variables associated with laparoscopic training skills using a predetermined MISTELS scoring system and a commercially available motion tracking software program.</p>

<p>Dr. Etienne Cote Dr. Sue Dawson Dr. Chick Weisse (Animal Medical Centre, NYC)</p>	<p>ecote@upei.ca sdawson@upei.ca</p>	<p><i>Computed tomographic angiographic study of external carotid artery anatomic relationships and branching patterns in the dog: normal and abnormal</i></p> <p>A systematic in vivo contrast computed tomographic (CT) assessment of the branching patterns of the great arteries of the head and neck in dogs. Clinical value: recognition of normal variation, and establishment of a baseline against which abnormalities could be compared. Student's responsibility: to collect and compile CT scan information, analyze results, and prepare a research poster abstract of findings. All work will take place locally (no travel requirement).</p>
<p>Dr. Jim Dundas</p>	<p>jdundas@upei.ca</p>	<p><i>Assessment of repeatability of preoperative planning for the Tibial Tuberosity Advancement procedure</i></p> <p>Radiographs acquired as a result of a different project will undergo preoperative planning measurements by individuals at different levels of training (spanning a range from first-year veterinary student to board-certified surgeon). The reliability of the measurements will be assessed statistically.</p>
<p>Dr. Katie Hoddinott Dr. Jason Stull Dr. J McClure</p>	<p>khoddinott@upei.ca jstull@upei.ca jmccclure@upei.ca</p>	<p><i>Protecting our patients from surgical site infections (SSI)</i></p> <p>Using previously collected data, this project will investigate SSIs in junor surgery patients - identifying modifiable risk factors to protect our patients. Additionally, a survey will be developed to collect information on knowledge, attitudes and practices of veterinary students related to surgery and SSI prevention.</p>
<p>Department: Health Management</p>		
<p>Dr. Jennifer Burns Dr. Emily John</p>	<p>jburns@upei.ca ejohn@upei.ca</p>	<p><i>Preliminary Investigation of Exercise-Induced pulmonary Hemorrhage in Competitive Draft Pulling Horses in Atlantic Canada.</i></p> <p>This project looks to investigate the prevalence of laryngeal hemiplegia (LH) and exercise-induced pulmonary hemorrhage (EIPH) in a population of competitive draft pulling horses from Atlantic Canada. From May-October 2021, approximately 40 horses will undergo upper airway endoscopy one hour post-exercise at numerous pulling competitions throughout PEI. During endoscopy, each horse will be given an EIPH, trachea mucus, and LH score. Other data, including the age, sex, height, and weight of horse as well as amount pulled in competition, will also be collected.</p>

<p>Dr. Javier Sanchez Dr. Luke Heider</p>	<p>jsanchez@upei.ca lcheider@upei.ca</p>	<p><i>Antibiotic stewardship and its impact on antibiotic use, antibiotic resistance and animal health on dairy farms.</i> This project involves farm data collection of antimicrobial usage and farm management practices.</p>
<p>Dr. J McClure Dr. Javier Sanchez Dr. Luke Heider</p>	<p>jmclure@upei.ca jsanchez@upei.ca lcheider@upei.ca</p>	<p><i>Prevalence of generic extended-spectrum cephalosporin-resistant Escherichia coli in dairy farms.</i> This project involves the comparison of different culture media to estimate the burden of resistant E. coli in manure samples from dairy cows.</p>
<p>Dr. John VanLeeuwen</p>	<p>jvanleeuwen@upei.ca</p>	<p><i>Evaluation of benefits and challenges of temporary veterinary clinics in remote northern Canadian communities.</i> With collaboration with Vets without Borders (VWB), the student and I would survey members of the communities involved in VWB temporary vet clinics in remote northern communities in 2019 and 2020 to quantify (and qualify through stories) benefits and perceived benefits of the clinics, and explore challenges and how to address the challenges.</p>
<p>Dr. Karen Overall</p>	<p>koverall@upei.ca</p>	<p><i>Effects of veterinary handling on canine behaviour and physiology</i> This project is repeated measures design study with control and interventional groups study designed to see how different examination approaches affect dogs' behavioural and physiological responses to examination. Students would be involved in behavioural assessments in real time during the appointment and through video analysis, and in the assessment, analysis and presentation of the data, so there will be clinical and research components to the work.</p>
<p>Dr. Ben Stoughton</p>	<p>wbstroughton@upei.ca</p>	<p><i>Development of an equine neurology computer case simulator</i> This project will involve the development of an equine case simulator to be used as an aid for teaching clinical neurology to veterinary students.</p>
<p>Dr. Laurie McDuffee</p>	<p>lmcduffee@upei.ca</p>	<p><i>Human and Horses Research Foundation Grant Project (HHRF) PROJECT 1</i> The student will be working with objective measures previously collected on horses participating in the HHRF Equine Facilitated Psychotherapy (EFP). The purpose of this study is to determine the extent to which EFP affects the well-being of the participating horses. This study will enable students to gain experience in processing</p>

		<p>heart rate variability (HRV), and stress behavior scoring using quantitative methods.</p> <p><i>Human and Horses Research Foundation Grant Project (HHRF) PROJECT 2</i> The student will be working with objective measures previously collected on humans participating in the HHRF Equine Facilitated Psychotherapy (EFP). The purpose of this study is to determine the extent to which EFP affects the well-being of the participating humans. This study will enable students to gain experience in processing heart rate variability (HRV), and psychological survey responses for individuals with PTSD.</p> <p><i>Development of an online tool for teaching equine behavior</i> The student will assist our research team by documenting equine behaviors using our video-graphic methods (i.e. filming behaviors during laboratories, in the field, and in the stall). The student will assist in editing, compiling and storing videos in our data repository. As part of the development of the online tool, the student will generate an algorithm outlining the process flow.</p> <p><i>Validating the online tool for teaching equine behavior</i> The student will assist our research team in designing and implementing a validation protocol to evaluate ratings of equine behaviors among horse trainers and experts involved in the field of equine or animal behavior. As part of this process, the student will assist in collecting observer rating data, and processing the outcomes.</p>
Dr. Martha Mellish	mmellish@upei.ca	<p><i>Sable Island Horse Hoof Morphology</i> Describe and evaluate the hoof confirmation of Sable Island horses from photographs of cadaver specimens.</p>
Dr. Jason Stull Dr. J McClure	jstull@upei.ca jmclure@upei.ca	<p><i>Measuring and influencing appropriate veterinary antibiotic use in Atlantic Canada.</i> This project will investigate the critically important topic of antibiotic use and resistance in companion and large animal species through the evaluation of various data sources (electronic medical records, AVC Diagnostic Services data). The student will gain clinically and research relevant knowledge and skills in antibiotic resistance and prudent antibiotic use.</p>
Dr. Shawn McKenna	slmckenna@upei.ca	<p><i>Atlantic Healthy Herds</i> Atlantic Healthy Herds is a disease surveillance project monitoring for Johne's disease, Bovine Viral Diarrhea, and Bovine Leukosis.</p>

Department: Pathology and Microbiology		
Dr. Shivani Ojha Dr. Shannon Martinson Dr. Megan Jones	shojha@upei.ca smartinson@upei.ca mejones@upei.ca	<p><i>Inhabitant Reptiles in Atlantic Canada: Reservoirs of Salmonella.</i></p> <p><i>Salmonella spp.</i> Will be isolated and identified from fecal material from pet and/or wildlife reptile population. Antibigram and molecular methods will be applied to characterize the isolates.</p>
Dr. Russell Fraser	rufrazer@upei.ca	<p><i>Splenic microRNA expression profiles in dogs with non-associative immune-mediated haemolytic anaemia</i></p> <p>Immune-mediated hemolytic anemia is a devastating disease in dogs with a poorly understood pathogenesis. This project seeks to understand the underlying role of microRNAs in the development of IMHA. The project will involve a historical review of cases submitted to the AVC VTH to identify candidates with and without IMHA for molecular profiling. Histopathological review of the spleen (and potentially other organs) to exclude co-morbidities is included.</p> <p><i>Examining the utility of photogrammetry in the delivery of gross veterinary anatomic pathology</i></p> <p>Photogrammetry is essentially a method of scanning objects and rendering them into manipulable, 3D digital objects (see an example here). This project will involve the generation of 3D models from gross pathological specimens (fresh and fixed), and will evaluate their utility in the teaching of anatomic pathology to DVM students.</p>
Dr. Mark Fast	mfast@upei.ca	<p><i>Reducing AMR through PACAP use to treat bacterial disease in fish</i></p> <p>In these studies fish will undergo immersion exposure to a bacterial pathogen (<i>Flavobacterium spp.</i>) and administration routes and dosage of PACAP will be examined using molecular tools to assess the immune responses, as well as clinical presentation of disease and morbidity.</p> <p><i>Complex gill disease (CGD) in salmon</i></p> <p>Tank-based trials will be conducted at AVC-UPEI involving Atlantic salmon smolts to develop a histopathological scoring system and associated molecular markers with different severities of CGD, so that intervention strategies can be assessed in the lab and field.</p>