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<th>Faculty Mentor</th>
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<th>Research Topic</th>
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| Dr. Spencer Greenwood | sgreenwood@upei.ca | **Disease ecology of avian parasite Trichomonas gallinae:** Sampling different wildlife and domestic populations to explore genetic diversity and transmission routes of an emerging disease. The student will learn; *in vitro* culture from clinical samples, conduct viability assays for survival in seed and molecular characterization via PCR, sequencing and phylogeny reconstruction.  
**Molecular characterization of helminths from marine mammals and wildlife:** Post-mortem cases (and archived samples) from wildlife and marine mammals will be screened for helminths. Morphological diagnosis will be confirmed by PCR, sequencing and phylogeny reconstruction. |
| Dr. Javier Sanchez | jsanchez@upei.ca | We will be looking for students to work on Antimicrobial stewardship, antimicrobial resistance (AMR) and animal welfare in dairy farms. These activities will contribute to a research programme on dairy health. Specific projects will explore:  
1) the use of standard phenotypic and metagenomics approaches for the early detection and control of the emergence of antimicrobial resistance in dairy farms in support of antimicrobial prudent use guidelines to improve antimicrobial therapies;  
2) development of novel, rapid Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF)-based methods for identification of antimicrobial resistance in bovine mastitis isolates and  
3) Cow longevity impacts of calf management practices. |
<p>| Dr. Bronwyn Crane | <a href="mailto:mbcrane@upei.ca">mbcrane@upei.ca</a> | Investigate sanitation practices for bovine intravaginal progesterone releasing device applicators and their potential role in the transmission of <em>U. diversum</em> and other bacteria. The student would travel to local farms, complete a survey about sanitation practices for the applicators, swab the exterior surface following regular use, and then we would perform <em>U. diversum</em> PCR and routine aerobic culture. |
| Dr. Mark Fast | <a href="mailto:mfast@upei.ca">mfast@upei.ca</a> | <strong>MICCSA – Mitigating the impacts of climate change on salmon aquaculture</strong> |</p>
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<td>Dr. Etienne Côté</td>
<td><a href="mailto:ecote@upei.ca">ecote@upei.ca</a></td>
<td>The goal of our project in 2019 is to characterize the responses of Atlantic salmon to vaccination and pathogen exposure under the challenges of increasing water temperatures and reduced oxygen, which are forecast due to climate changes in the North Atlantic over the next several decades. Through characterizing these responses, we plan to identify heritable markers for growth and immunological competence for Canadian broodstock programs under these future environmental scenarios, which will assist the salmon culture industry in meeting these challenges. The summer student will have the opportunity to assist in carrying out vaccination and challenge experiments at AVC, as well as Huntsman Marine Science Centre in St. Andrews, NB, using important pathogens impacting Atlantic Canada’s industry (sea lice and ISAv). The student will also get the opportunity to learn molecular techniques used for characterizing immune responses in salmon, which have application for all other species in veterinary medicine.</td>
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<td>Dr. Ben Stoughton</td>
<td><a href="mailto:wbstoughton@upei.ca">wbstoughton@upei.ca</a></td>
<td>In veterinary cardiology, medications often alter serum electrolyte concentrations. Recheck appointments for animals receiving cardiac medications are frequent, and involve bloodwork to measure serum potassium levels in particular. The test tubes into which these samples are drawn have been shown to alter the potassium level artificially, which could have important repercussions on treatment decisions. Even so, no quantification of that effect has been undertaken in veterinary cardiology. We propose to have a student help design and execute a brief clinical study in the AVC Cardiology Service. Dogs having blood drawn will have the blood sample separated into two different types of test tubes (one plain, red-top tube; the other anti-coagulated with heparin, green-top tube) and the potassium concentration will be measured on both. Results will help veterinarians who treat heart disease to better interpret and act on bloodwork results in their patients.</td>
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growing population of parasites in horses that are resistant to control measures. This poses a serious threat to the welfare of horses and future efficacy of parasite control programs on horse farms. Currently the prevalence of anthelmintic resistance nematodes on Prince Edward Island (PEI) horse farms is unknown. Therefore, we propose an investigation to determine the prevalence of anthelmintic resistance nematodes on PEI. To detect anthelmintic resistance, we will utilize the widely accepted fecal egg count reduction test (FECRT) which requires paired, pre- and post-treatment McMasters fecal exams. Results from the pre-treatment fecal egg count will allow horses to be categorized as low, moderate, or high shedders, and direct selective treatment strategies. By comparing the paired fecal egg counts in treated horses and grouping the data by farm we will be able to determine the level of anthelmintic resistance on each participating horse farm in PEI. In addition to measuring the prevalence of anthelmintic resistance, the data gathered will improve veterinarian designed parasite control programs, client education, animal welfare and minimize future anthelmintic resistance development on specific farms.