

Course Title:	Bioacoustics: Field Methods and Applications
Instructor(s):	Dr Scott M Ramsay
Dates:	3 – 16 May 2020
Location:	Algonquin Wildlife Research Station; Algonquin Park, Ontario
Cost:	\$1350 [\$350 deposit to home university; balance due to Wilfrid Laurier University by 3 April 2020] includes accommodation, meals and in-course travel. You must arrange your own transportation to and from Algonquin Park, and pay tuition fees to your home university.
Prerequisites:	A university course in animal biology; additional background in animal behaviour, ecology, or statistics would be an asset.
Enrolment*:	12 (3)
Course Description (brief):	<p>Acoustic signalling is used by a wide variety of birds, amphibians and insects in a number of behavioural contexts (eg group cohesion, predation avoidance, mate attraction and repulsion of rivals). In this course we will explore some methods of recording and analysing animal sounds. We will consider some of the functional constraints on the properties of animal sounds and signal transmission that may arise from characteristics of animals themselves (eg size and morphology), the context in which they are used, and the properties of the environment. Finally, we will also consider how animal sounds can be used to answer questions in ecology, evolution and environmental assessment.</p> <p>During the second week students will complete independent or small-group research projects.</p>
Evaluation:	<p>Seminar (based on a pre-assigned article, prepared before course): 20%</p> <p>Participation (seminar discussions, and field activities): 15%</p> <p>Field notebook: 15%</p> <p>Project presentation (oral presentation on the last day of the course): 10%</p> <p>Final written paper (10 – 15 pages; based on independent project; due 4 weeks after course completion): 40%</p>

An Average Day – What to Expect

(a) Daily timeline	5:00 am dawn field work; 7:30 am breakfast; 8:30 am morning field work; 12:00 pm lunch break; 1:00 pm afternoon break; 2:00 pm field work de-brief, notebook updates, data entry; 3:00 pm student seminars; 4:30 pm instructional seminar; 5:30 dinner; 6:30 – 9:30 pm evening field work. In the second week of the course when students are working on projects, more time will be devoted to field work, including time during the afternoon. Because of the long days it is essential to get plenty of sleep during the time that is aside for rest; otherwise it is easy to become exhausted, which can lead to stress.
(b) Work habitat & Physical exertion	Short hikes (most less than 3 km but possibly up to 8 km) over moderately hilly terrain; a variety of habitat including open meadows, heathland and mixed forest. Aside from the personal gear that you bring with you on outings, you will be expected to carry some light-weight equipment and instruments.
(c) Common activities	<p><i>Common activities:</i> driving to remote sites (up to 30 km) in the dark; hiking through wet/muddy habitat; sitting quietly during observation sessions or experiments, which may include periods of cold temperatures and rain.</p> <p><i>Associated risks:</i> collisions (mitigated by driving safely, adjusting to the conditions); twisted ankles, damp feet, blisters from poor footwear (mitigated by wearing appropriate footwear for the conditions, eg good, worn-in hiking boots or rubber boots), fatigue (mitigated by taking rest breaks), hypothermia (mitigated by dressing appropriately for the conditions; going indoors if conditions persist).</p>
(d) Weather, dehydration, & biting insects	<p>Algonquin Park in early May typically experiences cool weather, with daytime highs in the mid-teens, and overnight lows near freezing; rain is likely on at least a few days during the course. If it is a warm spring, we might experience daytime highs into the 20s, which will typically be accompanied by bright sun and high UV. You are likely to experience a 15 – 20 degree change of temperature over the course of a morning. If it is cold and wet, there is a risk of hypothermia, although this can be avoided by dressing appropriately for the conditions (waterproof shell over insulating layers).</p> <p>In a typical year, biting insects are not too abundant during the first half of May, although their numbers will increase over the duration of the course. You are most likely to encounter blackflies and mosquitoes; no-see-ums like cool damp conditions, and can be a nuisance around sunrise and sunset. Unless it is exceptionally warm, you are unlikely to be bothered by deer flies and horse flies.</p> <p>The unpleasant effects of weather and biting insects can be avoided by dressing properly: long sleeves and pant legs; outer layers made of waterproof materials; mid layers made of quick-drying materials; insulating base layers; hats including a toque for cold conditions and a broad-brimmed hat for warm conditions; warm gloves and footwear; rubber boots for days when it is raining. Insect repellents with DEET are effective at repelling mosquitoes and blackflies.</p>
(e) Toxic/poisonous, wildlife/ plants	<p>Wildlife encounters are most likely to involve moose; encounters with black bears and wolves are much less likely. Most wildlife will keep their distance from people; however some animals may charge at a person if they feel threatened. For safety purposes no one will be allowed to work alone in the field. Where groups are scattered we will institute a check-in protocol to make sure everyone stays safe; we will also use the station sign-out board to note our plans each day. We will have a training seminar on working safely in areas with wildlife at the start of the course.</p> <p>Stinging insects (bees and wasps) are not a problem at this time of year. We are unlikely to encounter any plants that are poisonous on contact (e.g. poison ivy).</p>
(f) Sleeping, washroom & laundry facilities	<p>Details about the facilities at Algonquin Wildlife Research Station can be found on their website at https://www.algonquinwrs.ca/index.php/facilities/. Sleeping accommodations will consist of small, electrically heated cabins with bunks for 2 – 6 students; you will be assigned to cabins by gender; the bunks have mattresses; you will need to provide your own bedding, pillows and towels.</p> <p>The station has washroom facilities in one building with separate toilets and showers (with hot running water) for males and females; at some field sites we will have access to Ontario Parks comfort stations; in other places there may be vault toilets; lots of places we visit will have no immediate toilet facilities.</p> <p>The station has laundry facilities including one washer, one dryer and a clothesline; you need to supply your own detergent, and users are expected to pay a small charge per load.</p>

(g) Meal plans & food allergies	The station cooks prepare and serve three meals per day. Meals typically include both meat and vegetarian options. If you submit a request in advance the cooks will do their best to accommodate special dietary requirements.
(h) Non-academic responsibilities	Everyone is expected to clean up after themselves as a matter of routine. In addition, station users are also assigned to dinner dish duty, which includes putting away leftover food, washing dishes and tidying up the dining room. Dish duty is assigned on a rotation, and you can expect to do it three or four times over the course of our stay at the station.
(i) Degree of isolation	<p>You will have access to power to charge electronic devices. Cellphone reception in Algonquin Park is spotty due to two factors: there are few cellphone towers in the park; and the terrain interferes with signal transmission. As a result, you may find there are extended stretches of time when you are unable to receive messages or calls.</p> <p>During the time we are there, the main retail stores (snacks and souvenirs) in Algonquin Park will not be open, however the outfitters in or near the park will be open if you need to buy any items you forgot to pack. There are stores in the communities just outside the park. It is about a 30-minute drive to Whitney where some basic supplies can be obtained. There is a first-aid post in Whitney. It is about a 1-hour drive to Huntsville where there is a greater range of stores, and services including a hospital.</p>
(j) Alcohol & drugs	Alcohol is permitted during off hours. The station has a code of conduct that applies to all users and governs the use of alcohol and drugs on station property. Further, all students are expected to follow the code of conduct at their home university while staying at Algonquin Wildlife Research Station.
(k) Vaccinations/ Insurances	Not required.
(l) Social Situations	<p>You will be sharing sleeping quarters, and washroom facilities with others (students in the class as well as researchers working at the station). You will be expected to work with partners to conduct experiments and collect data for your individual projects.</p> <p>Algonquin Park is a wilderness environment. It is not like a rural community; it is most assuredly not an urban environment. Other than your classmates and others staying at the research station, you are unlikely to encounter many people over the duration of the course. If we are in a public area of the park you may have some contact with park users, but that will be sporadic. Over the span of two weeks you will likely find yourself becoming accustomed to having limited social contact, which can lead to some discomfort with crowds when you return home.</p>
(m) Final comments	This course offers you a chance to experience life at one of the oldest research stations in one of the oldest protected areas in Canada. You will get to meet students from other universities, including your classmates and students working on research projects based at the station.