

<b>Course Title:</b>	<b>Measuring Ecological Gradients on Manitoulin Island</b>	
<b>Instructor(s):</b>	Dawn Bazely, Department of Biology, York University, 4700 Keele Street, Toronto, ON M3J, cell 416-917-4239, dbazely@yorku.ca	
<b>Dates:</b>	Sunday May 1 to Friday May 13 2022 (12 nights)	
<b>Location:</b>	Sheguindah, Manitoulin Island. Accommodation and meals at the Paradise Motel. Mobile Field Lab at Sheguindah Hall.	
<b>Cost:</b>	<p>Total cost is \$1300: \$350 nonrefundable deposit and remaining balance of \$950 by March 31, 2022. York University has electronic deposits in place but if this presents a problem for you, contact myself or Cassie Schlosser, Dept. Biology, York University, 4700 Keele St., Toronto, ON M3J 1P3.</p> <p>Fee includes: all accommodations, meals, use of field equipment, transportation during the course.</p> <p><b>Note that students living on Manitoulin Island near Sheguindah for whom commuting to the field course headquarters from home is a possibility are exempt from the accommodation and food fees. There will be some small charge for two school bus trips.</b></p> <p>Excluded: students are responsible for travel costs to and from Sudbury where we will convene on Sunday to meet the school bus, at Vale Living with Lakes Centre parking lot.</p>	
<b>Prerequisites:</b>	A second-year Ecology course.	
<b>Enrolment:</b>	<p>11(3 places for York University students and 3 places for Laurentian students, including students who, if they live on Manitoulin Island, will be exempt from paying the accommodation costs)</p> <p>Therefore, 5 spaces are available for OUPFB students outside of York (3) and Laurentian (3)</p>	
<b>Course Description (brief):</b>	<p>In ecology, spatial and temporal gradients are the norm: e.g. gradual changes occur in the abiotic environment for temperature or pH.</p> <p>This course covers methods spanning terrestrial and aquatic ecology for collecting data to detect gradients. Students will also learn about connections between traditional western knowledge and Indigenous knowledge, as well as between STEM and social sciences through exposure via Ecotourism.</p> <p>Located 1.5 hours southwest of Sudbury, Manitoulin Island is the world's largest freshwater island. Unique plant communities known as alvar vegetation are found on its limestone pavement The geological formations of Niagara Falls extend all the way up here at the end of a 725km long escarpment that is a UNESCO Biosphere Reserve. The more ancient, acidic, pre-Cambrian rocks of the Canadian Shield also surface in Sheguindah. Manitoulin's environmental and human history are written in its landscape with many clues for students to detect and solve.</p> <p>Our course draws on expertise from former Laurentian faculty and researchers, including Dr. Charles Ramcharan (aquatic), Dr. David Lesbarreres (herps), Dr. Fallon Tanentzap (restoration ecology), and Dr. Andrew Tanentzap, members of local First Nations, and Manitoulin residents running Ecotourism businesses, and sustainable agriculture.</p>	
<b>Evaluation:</b>	<p>In-course – Pecha Kucha talk on an assigned article about Manitoulin</p> <p>In-course – Active participation in a citizen science field-survey</p> <p>In-course – In course ID quiz about Manitoulin Flora, Fauna &amp; Soils</p> <p>In-course – Field journal handed in at the end of the course</p> <p>In course – Field research project (2-3 person team) – project pitch</p> <p>In course – Field research project (2-3-person team) – brief summation</p> <p>After-course – Field research project (2-3 person team) - written report</p>	<p>15%</p> <p>5%</p> <p>10%</p> <p>20%</p> <p>10%</p> <p>10%</p> <p>30%</p>

## An Average Day – What to Expect

Daily timeline	<p>Most days will begin after a breakfast around 8 am, with students being in the field. In week 1 we will learn field techniques for plant, insect, mammal, bird and herp identification. We will have two field trips via school bus to the Ojibwe Cultural Centre in M'Chigeeng First Nation and to Wikwemikong Unceded Territory. Most days we will be in the classroom for at least one hour, for different purposes, including training on field equipment and taxonomic identification with binary and other keys.</p> <p>A course schedule will be provided at the start of the course, but weather will almost certainly cause adjustments as we go. Each student will be in a group, also on rotation, that will require after-dinner clean-up duty two or three times during the course.</p>
Work habitat & Physical exertion	<p>Students will be working mainly on foot, possibly walking at least several kilometers per day. The terrain around Sheguindah is not especially rugged but parts of the Cup and Saucer Trail, M'chigeeng First Nation, can be rough going – there are very flat stretches. Good running shoes or light hiking boots will usually be appropriate. Some landscapes are low and wet underfoot. Once or twice we will be in marshes, and in such cases old running shoes that can get wet will probably be superior to boots. Once or twice we will be canoeing (with life jackets), although it will involve only relatively short distances. Because we will only be in shallow water, knowing how to swim is not mandatory. BRING rain gear – raincoat, rain pants and rain hat if you have the latter. We will have some chest waders.</p>
Common activities	<p>In the first week students will be introduced to field methods and working in field sites in and around Sheguindah, on quiet roads and trails, in wooded and open habitats off-trail, and at the lake edge. There will be guest lectures and work in the field lab.</p> <p>In the second week, students will develop a group field project and carry it out.</p> <p>Associated possible inconveniences: long days, getting wet from rain, twisted ankles in uneven terrain, and, during the second week, being annoyed by biting insects (mosquitoes and black flies).</p> <p>With thanks to Alex Mills' course description for Algonquin.</p>
Weather, dehydration, & biting insects	<p>May weather is variable. Nights CAN still be frosty, but daytime summer temperatures are also a possibility. Please don't pack based on the weather you are experiencing in southern Ontario! Warm hat, gloves, and layers (including long underwear) are recommended, but so are lightweight clothes for warm conditions. Bring rain gear, daypack, a water bottle, your favourite insect repellent and sunscreen. Days approach 15 hours of daylight in May at this latitude. Even in warm weather, hats and skin-covering clothing will be best suited for most field activities to minimize sunburn and insect bites. To avoid insect bites, repellent is recommended, but you may also wish to bring a "bug jacket" or a head net.</p> <p>With thanks to Alex Mills' course description for Algonquin.</p>
Toxic/poisonous, wildlife/ plants	<p>There is poison ivy and deer ticks that cause Lyme disease, along with blackflies, mosquitoes and other stinging insects. Students will be trained in identifying and avoiding these hazards, and dealing with exposure. When we are in canoes, life jackets are mandatory. Because we will only be in shallow water, knowing how to swim is not mandatory. Professor Bazely is CPR-C and First Responder trained.</p>
Sleeping, washroom & laundry facilities	<p>We are taking over a tiny motel that is 1950s retro- and absolutely spotless. Some rooms will be shared by 2 students as they have 2 double beds, while others are single rooms with 1 queen bed. All rooms have bathrooms and desks. Bedding is provided. There are no laundry facilities, but you will be able to rinse out t-shirts and hang them out to dry.</p>
Meal plans & food allergies	<p>For students who are not commuting from their homes on Manitoulin, meals will be catered three times per day (breakfast, lunch, dinner) at prescribed times.</p> <p>Breakfast will be self-serve using cereal, toast, etc. but occasionally may be a hot breakfast.</p> <p>We will have boxed lunches for consumption in the field.</p> <p>Dinners are usually a hot meal.</p>
Non-academic responsibilities	<p>Students will be on clean-up duty two or three times during the course. This includes evening dish duty and also sweeping / cleaning of the field lab and rooms, but not cleaning toilets. Students are expected to be tidy in their motel rooms in consideration of shared accommodation.</p>
Degree of isolation	<p>The Paradise Motel in Sheguindah and Sheguindah Hall are in a small town, adjacent to Sheguindah First Nation. There are small shops in walking distance. The hotel has WiFi.</p> <p>We will be having at least one school bus trip that takes us through small towns with shops.</p>
Alcohol & drugs	<p>This is a no-alcohol course, other than the Saturday of the first weekend and the last evening, when the motel owner has allowed an outside BBQ where a maximum of two units consumption of beer and a wine will be permitted. Smoking marijuana or marijuana products is not allowed.</p>
Vaccinations/ Insurances	<p>All students will be required to demonstrate that they have been fully vaccinated against Covid-19.</p>

Social Situations	<p>Most field ecology research is done in a team setting of some kind. Learning to behave and interact professionally and respectfully in diverse groups and settings is a vital skill regardless of your future employment setting. As with all my other undergraduate courses, this is also my expectation of this course.</p> <p>Professor Bazely is a leading advocate for improved policies in higher education around Equity, Diversity and Inclusion and excellence in pedagogy. She has embedded this skills development in her courses and research groups for thirty years. <a href="https://www.slideshare.net/DawnBazely/updated-my-experience-with-tackling-ongoing-barriers-faced-by-women-in-stem-in-canada">https://www.slideshare.net/DawnBazely/updated-my-experience-with-tackling-ongoing-barriers-faced-by-women-in-stem-in-canada</a></p>
Final comments	<p>In the early 1990s, I taught this OUPFB field course out of the long closed, Ontario Ministry of Natural Resources Fisheries Research Station in South Baymouth. It was a one-week OUPFB course about Field Methods in Plant Ecology.</p> <p>A recent vacation on Manitoulin inspired me to resurrect and expand this course on the world's largest freshwater island, to include field methods in zoology and aquatic ecology, and Indigenous ecological knowledge and expertise. I hope that students will fall in love with Manitoulin as I did, during my first ever undergraduate field course experience in 1979, when I saw a beaver a few feet away from me, at dusk on the road near my mini-field project site in Gore Bay (mid-Manitoulin Island): then and there, I decided that I wanted to be a field ecologist. Et voilà!</p>