WILFRID LAURIER UNIVERSITY

Ontario Universities Program in Field Biology

Course Title:	**Field Botany—Medicinal Plants in Flora of Ontario**
Instructor(s):	Dr. Mihai Costea Department of Biology Phone: 519-884-0710/3407 Wilfrid Laurier University Email: mcostea@wlu.ca Waterloo, Ontario, N2L 3C5
Dates:	Mon, May 13 to Saturday, May 25, 2019. 2 weeks; 0.5 credits
Location:	Wilfrid Laurier University, Waterloo, ON. Day field trips from Waterloo to various locations/habitats in Southern Ontario, and 3 days in Bruce Peninsula.
Costs:	**Course expense fee $400** [$350 deposit payable to home university; $50 balance due on May 13 (BA401)] and **the tuition** payable at your home institution. The course fee includes only the transportation to various locations in southern ON, the accommodation costs in Bruce Peninsula, and the consumables for laboratory work and herbarium mounting supplies. In addition, you must also cover: **(1)** The travel expenses to attend the course (if your original city is different than Kitchener-Waterloo). **(2)** The cost of accommodations in Waterloo if you are not from the area (ca. $250/week in the WLU Student Residences, or lower if are willing to share housing in the city). **(3)** You must supply your own food (lunch bag, etc.) during the field trips.
Prerequisites:	A university introductory course in **plant biology or botany**.
Enrolment:	**12** (8)
Description:	Principles of field botany and plant identification with emphasis on learning the medicinal plants from the flora of Southern Ontario. The course will introduce you to field, herbarium and laboratory methods used in plant systematics, floristics and pharmacognosy. Native and cultivated medicinal plants will be presented along with their traditional and modern uses. We will also conduct observations on plant communities, reproductive biology, etc. You will observe and collect plants, identify them, and prepare herbarium specimens. We'll have day trips to various habitats from Southern Ontario, to the Royal Botanical Gardens in Hamilton and the Arboretum in Guelph. In the second week we will spend three days in Bruce Peninsula. Expect morning to night daily schedules (including in the weekend as well as in the first and last day) and a significant amount of hiking. You must attend daily.
Evaluation:	**1)** Final plant ID test = 25%. **2)** A herbarium of 50 species which you can keep afterwards = 20%. **3)** Final project = 45% which will consist of two parts: **3a)** An identification key for ALL the plants encountered during the field course (25%), and **3b)** A table in which you will compare traditional versus modern medicinal uses for ALL the species encountered (20%). **4)** Participation = 5%; **5)** Field notebook = 5%.

Deadline to apply is **Feb 8, 2019.**
If interested please complete the application form and submit it to the OUPFB course coordinator at your school.
Deposit of $350 is due at the time of registration.

Tuition at your home institution is *in addition* to any field module costs.
Students who drop a field course should not expect a refund of any field course costs.
Students are encouraged to purchase cancellation insurance if airline tickets are required.
Students are responsible for all fees incurred by the home or host university due to any bounced cheque.

An Average Day – What to Expect

(a) Daily timeline	We usually meet at 7 am in the lab. We pick up the field gear prepared the previous night and drive to the planned day site(s). Drives are about one hour long, with the exception of the trip to Bruce Peninsula which will practically take all day because we'll stop to explore several sites on our way there. Around 12:00 we have a ~30 minute lunch in the field, which you must bring with you. After that, we continue to explore plant communities or drive to another site nearby. We usually start driving back to the campus after 5 pm when the traffic subsides. After dinner, for which you are free to go home, if you leave nearby, or to one of the many eating places near the campus, we meet again in the lab to identify the plants collected that day which require microscopy observation (e.g., grasses, sedges, etc.), update the data for the collections, check on the field pressed plants, as well as prepare the plant presses and other field gear necessary for the next day. Thus, a typical day runs from 7 am to after 9 pm. Some days may be a bit longer or shorter depending on the length of the trips and the amount of plants/data encountered/collected. Although days are long, you can count on a "power nap" during the drives back to the campus ☺.
(b) Work habitat & Physical exertion	We'll hike some 7-10 km daily, each one us carrying water, lunch and other personal items, plant presses, notebooks, guides and field gear. The terrain, landscape and plant communities will be quite diverse. One of the objectives is to learn how to observe and identify a maximum number of plant species directly in the field. For that we try to reach as many different habitats as possible. One day we may be in the woods, the next in a bog. You must be in good shape physically because while the walking will usually be slow paced to allow plant observation, you cannot remain behind. The weather may compound to tiredness, if raining or full sun. However, we stop frequently to examine/collect plants, during which you can make yourself comfortable on the ground with your plant and a sip of water.
(c) Common activities	• Common activities: long days spent outside rain or shine; hiking through diverse terrain; identify plants; assess vegetation; collecting/pressing plants. • Associated risks: physical fatigue, sprain ankle, blisters from unappropriated footwear, dehydration, sun burns. If you are not used to spend full days outside, we'll show you the basic "tricks" not only to "survive" but also to enjoy nature and this type of work (see more below).
(d) Weather, dehydration, & biting insects	• Weather in May is quite unstable. Some days it could be really hot, reaching 30C; others may be very cold and windy, under 10C. Rain may rapidly replace sunshine and vice-versa. For these reasons, dress up in layers, have good, impermeable footwear and jacket. You can keep a spare of dry clothing in the car if things get too nasty. • Insects are not as bothering in May as they are in July-Sep; however, in the past students have complained about mosquitoes and blackflies. Some of the sites may have ticks. Long pants; long sleeves and insect repellant are usually sufficient to take care of these nuisances, and we'll let you know where ticks have been found for an extra careful search of the body.
(e) Toxic/poisonous, wildlife/ plants	Most sites have poison ivy, which you must learn to recognize fast if you want to avoid its dermatitis offering. We'll point out other toxic/hallucinogenic plants, many of them used as medicinal either by traditional aboriginal or modern medicine. Luckily flora of ON is friendly otherwise: not too many plants with spines or hooks. Chances to be bitten by a bee or wasp are small, but the possibility exists, and in case you are allergic, we must know and be prepared for it. Also, Bruce Peninsula is home for the deadly Massasauga rattlesnake, which is normally shy and hard to encounter. However, being watchful when picking up a plant, placing a step or sitting down is a must.
(f) Sleeping, washroom & laundry facilities	• Sleeping accommodations: most nights you will be sleeping in your own comfortable bed, which is an unusual luxury for field work. In the second week, in Bruce Peninsula, you'll spend two nights, sharing a room of two beds with another student. Each room will have a fully equipped bathroom. • There are rarely bathroom facilities in the field. Sometimes we can stop at a Tim Hortons, but most often we'll have to improvise and adapt in the field. If this is a major issue, you may want to rethink taking this course. • Washing/laundry facilities: you will be responsible for laundry and the time for this will be limited during the night. You may want to have sufficient clothing in such a way you don't need to do laundry during the course.
(g) Meal plans & food allergies	You will be fully responsible for your food, which you must bring in sufficient quantity every day. We may be able to stop for "timmies" sometimes, but don't count on that as a source of food. Also, we do not have time to do groceries or go shopping. You must be prepared with the amount and type of food you know you need every day.
(h) Non-academic responsibilities	We are responsible for cleaning up the lab/herbarium and vans at the end of each day, and you will have to participate to that.
(i) Degree of isolation	We will not be isolated and most areas we'll visit have cell coverage. Emergency health care is within driving distance – hopefully we will not need it!

(j) Alcohol & drugs	While I cannot follow you after hours, I strongly recommend abstaining or using very small amounts of alcohol or drugs. Days are quite intense and alcohol or drugs may affect your ability to function properly the next day. Having a hangover while being driven in a car or hiking in full sun can place you in uncomfortable situations, not to mention jeopardize both your safety and of the entire group.
(k) Vaccinations/ Insurances	Nothing other than what you would need for living in Ontario.
(l) Social Situations	We'll travel around in two vans, so you will have to share a tight space with six other students. After a day in the field, we may be wet or smelly. The physical proximity may be closer than what you are normally used… However, you will discover that your companions have often similar dreams and aspirations, thus, making new friends is quite common. We eat lunches together and then dinner in small groups or separately. After finishing the course, it was common for students to form a Facebook group and keep in touch.
(m) Final comments	This course is as much of an effort for me as an instructor as it is for you as a student. It is easier to teach a classroom course and the burden of responsibility is incomparably lower. I offer it from the conviction that experiencing plant biology in nature has a power that the less demanding, regular classes — even with labs — can never provide. I was offered this opportunity by my professors and I now feel it is my duty to pass it on to you. Despite the tiring days, long assignments and overall effort during this course, when all was done and over, most students appreciated it for the many plants they learned, the botanical methodology assimilated, and the "discovery" of the fact that all (or most of) the plants have potential medicinal applications.