

School of Environment, Resources and Sustainability  
Faculty of Environment  
University of Waterloo

## ERS 340: Ecosystem Assessment - Spring 2019

**Instructor:**

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**TA:**

TBA

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**Course Location:** *University of Waterloo Campus*

**Course Dates:** The course formally runs the entire spring term – however, the bulk of the course (field skills) occurs during the block period of May 6 -22, 2019 (excluding Victoria Day). A detailed calendar will be posted to LEARN prior to the course beginning. A detailed course schedule will be available the first day of class, however most days will run from 9:00 AM – 4:30 PM. We will be travelling and staying at Bluewater Outdoor Education Centre (Warton, Ont) from May 10<sup>th</sup> – 12<sup>th</sup>.

**Additional Course Fee:** \$694.77 plus 90.32 (HST) = 782.09 Paid to the University. This fee is in addition to the normal per course fees set by the Province and the University; it pays for all transportation from the university to all sites. It also includes accommodations at the Bluewater Outdoor Education Centre (BOEC). Lunches and dinners at BOEC are also included in the course fees. Students will be responsible for all other meals and snacks. Further, the course fees include the mandatory textbook for the Outdoor Survival and Search and Rescue portion of the course.

\*\*Please note that normally there will be no refunds of the course fee if a student drops the course. The reason for this is that provincially accredited certifications require a guaranteed number of students present to run, and accommodations are booked well in advance. If extenuating circumstances apply, decisions on refunds will be rendered by the Associate Director of Undergraduate Studies, School of Environment, Resources and Sustainability.

**Course Description:** Today's environmental practitioner requires a comprehensive skill set of advanced environmental assessment techniques. In ERS 340, students will be trained by in-field professionals in terrestrial ecology to become independent environmental technicians. Students will conduct numerous field and lab analyses, as well as receive certification(s) and practical

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<sup>1</sup> When communicating via email, please identify the course (e.g. "ERS 340") in the subject line. Make sure to use your UW account.

hands-on experience in recognized ecosystem assessment protocols and required field skills. Students will benefit from interactions with guest presenters and have other networking opportunities during the course. You will be expected to take part in long days in both laboratory and outdoor environments.

### **Intended Learning Outcomes:**

1. Develop advanced skills in the collection and analysis of environmental data.
2. Acquire professional certification(s) in provincially recognized assessment protocols.
3. Learn to expertly record and manage environmental data.
4. Develop key field skills to support a future career in an ecological and environmental field.
5. Practice networking skills while meeting professional environmental practitioners.

### **Certification Courses (need to pass in-course test to be certified):**

1. Ontario Benthic Biomonitoring Network (OBBN)
2. Vegetation Sampling Protocol (VSP)

### **Other Recognized Certificates and Key Field Skills**

1. Extensive Plant Identification Training
2. Bird Identification and Monitoring Training
3. Search and Rescue Training
4. Introduction to Wilderness Survival
5. Introduction to Pollinator Identification and Sampling

### **Required Textbooks:**

*Shrubs of Ontario* - Available as courseware from campus bookstore (it is good idea to have a personal copy of this book) or you can sign one out from the Ecology Lab (limited numbers).

*Trees of Canada* – You can either buy your own copy (it is good idea to have a personal copy of this book) or you can sign one out from the Ecology Lab (limited numbers).

*Newcomb's Wildflower Guide* - You can either buy your own copy (it is good idea to have a personal copy of this book) or you can sign one out from the Ecology Lab (limited numbers).

### **Course Process:**

The Province mandates that this course is open during the entire term. However, the major portion of this course will run from May 6<sup>th</sup>, 2018 - May 22<sup>th</sup>, 2019.

MANDATORY ETHICS TRAINING REQUIRED PRIOR TO THE BEGINNING OF THE COURSE. Each student must complete the Basic Field and Tissue Course (Theory; AR0009). This will be available on LEARN once you have signed up for the course. Information on the course is available at <https://uwaterloo.ca/research/office-research-ethics/research-animals/pre-submission-and-training>

Students must fill out the following forms and hand them into the instructor on **May 7<sup>th</sup>** during our safety training: (these forms will be posted on LEARN)

1. **UW ACKNOWLEDGEMENT OF RISK AND RESPONSIBILITY FORM**  
[https://uwaterloo.ca/safety-office/sites/ca.safetyoffice/files/uploads/files/risk\\_responsibility08\\_0.pdf](https://uwaterloo.ca/safety-office/sites/ca.safetyoffice/files/uploads/files/risk_responsibility08_0.pdf)
2. **UW EMERGENCY INFORMATION FORM.**  
[https://uwaterloo.ca/environment/sites/ca.environment/files/uploads/files/emergency\\_information\\_form.pdf](https://uwaterloo.ca/environment/sites/ca.environment/files/uploads/files/emergency_information_form.pdf)
3. **FACULTY OF ENVIRONMENT FIELD TRIP FORM**  
[https://uwaterloo.ca/environment/sites/ca.environment/files/uploads/files/field\\_trip\\_form\\_111213\\_2.pdf](https://uwaterloo.ca/environment/sites/ca.environment/files/uploads/files/field_trip_form_111213_2.pdf)

### Course Evaluation

Section A: Quizzes/Certifications *	Percentage of Final Grade
Field Note Writing Quiz (In-class in the afternoon of May 6 <sup>th</sup> )	5%
Vegetation Sampling Protocol Test (on LEARN Available from May 17 <sup>th</sup> – May 20 <sup>th</sup> )	10%
OBBN Methods and Protocol Test (Morning of May 10 <sup>th</sup> )	10%
OBBN ID Test (Morning of May 10 <sup>th</sup> )	10%
Wilderness Aid and Search and Rescue Quiz (on LEARN Available from May 14 <sup>th</sup> – May 17 <sup>th</sup> )	5%
Section B: Assignments	Percentage of Final Grade
Field Notebook (Due May 22 <sup>nd</sup> , 2019 by Midnight on LEARN)	15%
Lab Notes and Data Entry (Due: May 22, 2019 @ 4:30 PM directly to Christine and on LEARN if applicable)	15%
Participation, Professionalism and Attendance	10%
Individual Final Assignment (Due: by Midnight on Tuesday, July 30 <sup>th</sup> , 2019 on LEARN)	20%

**\*Students will be required to complete and pass all exercises and practical exams as set by the instructors.**

**Additional Course Information:**

Field skills courses are physically demanding and will include long days. We will be going outside in all weather conditions. A few required supplies are listed below:

- Backpack to carry everything in the field
- Field books listed above
- Book for field notes, pens and pencils
- Work gloves
- Boots for wet and muddy areas
- Water bottle
- Insect repellent/ bug jacket
- Clothing: hat(s), sunglasses, good field clothes (cavass or similar pants with zip off legs are good), clothes that are neutral rather than blue are best (blue tends to attract insects), long sleeved shirts, rain gear, a good pair of hiking boots with ankle support
- Sunscreen (SPF 30 at least)
- It is a good idea to bring some personal medical supplies (band-aids, polysporin, aloe vera)
- Snacks and bagged lunches for each day of field work
- Breakfast foods and snacks for time spent at BOEC
- Personal supplies for stay at BOEC
- Sleeping bag and pillow for stay at BOEC

\*\*Any student with severe allergies or reactions to certain plant oils, insect stings (etc) need to take precautions ahead of time (e.g. EpiPen) and alert TAs and Instructors on the safety form.

\*\* Please let me know if you have any dietary restrictions.

**Field Notebook – (15% of mark)**

**Due Date:**

Field Notebook Due May 22<sup>nd</sup>, 2019 (Due by Midnight on LEARN)

Each student is required to create and maintain a comprehensive set of field notes, which will be submitted at the end of the course. Field notes should include data on weather conditions, geographic locations, dates, environmental data collected and any observation or any ideas that you feel are important. Field Notes will be marked on their comprehensiveness and effectiveness. Notes are to be submitted in a digital format (ex. by jpg.) on LEARN by midnight. Late submissions will not be accepted. Any entry received after midnight on the due date will receive a zero grade. *It is recommended you keep a daily log in order to maintain efficiency of this exercise. No extensions will be granted.*

## **Lab Notes, Data Sheets and Data Entry (15% of mark)**

**Due Date: May 22, 2019 @ 4:30 PM directly to Christine and on LEARN if applicable**

### **\* A list of all Lab Notes and Data Sheets that are required will be supplied.**

Students will be collecting and entering data for various portions of the course. Each student is required to create and maintain a comprehensive set of lab notes (including data sheets for VSP and OBBN) that will be submitted by May, 22<sup>nd</sup> 2019 by 4:30 PM directly to Christine and on LEARN if applicable. Lab notes should include information on data analysis, results, and methodology and any other pertinent information should also be recorded. Data logs will be provided for some of course components. Lab notes will be marked on their comprehensiveness, accuracy and clarity.

## **Participation, Professionalism and Attendance (10% of mark)**

On an individual and group basis (when applicable), you will be assessed on the general quality of your fieldwork and data entry. It is expected that you will be on time and prepared each day. Further, it is expected that data will be gathered with reasonable efficiency and organization; accurate, legible, and neat, per desired formats, and kept in good order. Conduct on the site is also important (e.g., minimizing disturbance to the environment, keeping equipment in good order and acting in a professional manner). Curiosity is encouraged, along with good observations: appreciation will be shown for such additional contributions. Naturally, I will make allowance for your need to learn through experience and there will not be unreasonable expectations. Be conscientious and try your best.

Don't be afraid to ask questions. I encourage them. If unsure or confused – ask! Don't be shy: our paramount rule as instructors is that students must always be treated with respect and every question is welcomed without judgment. If you notice something interesting or curious, think about it and mention it to the instructor or your colleagues. Such observations can prove valuable. If you have an idea for improving fieldwork procedures or operations – propose it. Also, take notes and write comments on the data sheets.

## **Individual Final Assignment (20% of mark)**

**Due: by Midnight on Tuesday, July 30<sup>th</sup>, 2019 on LEARN**

Throughout the course, there will be several lectures, various training programs and specific skill development on various aspects of ecosystem assessment. You will be given the opportunity to undertake an interesting assignment to demonstrate knowledge you have gained from the course. The course instructor will review the assignment expectations on the first day of class (May 6th, 2019). Use your course notes, bibliography, library resources, scientific journals, Web sites and your own experiences. Make sure to acknowledge your sources of information and assistance;

usual UW policy applies. The assignment is due by **Midnight on Tuesday, July 30<sup>th</sup>, 2019 on LEARN**. \*\* Since this is due past when the course runs there is plenty of time to complete this assignment and there *no extensions will be granted*.

### **Readability and Clarity:**

Students are expected to present well organized, and properly written work. Penalties of up to **25%** may be applied in cases where readability and/or clarity are inadequate.

### **Late Penalties**

All assignments, data files and field notes (some data sheets will be submitted directly to Christine) are to be submitted online on LEARN and are due at *midnight* on the date indicated or if specified as another time. Students are responsible for handing their work in on time. No late assignments will be accepted. You must be present and write each test/quiz in the time allocated. No makeups will be given. Only in unavoidable circumstances will extensions be granted, and must be given by the course instructor *prior* to the due date of the assignment, field notes or data file.

### **Citation Format for Assignments**

The citation format adopted for this course is the APA (American Psychological Association) style. The complete style outline can be found in the Publication Manual of the American Psychological Association, located in the reference section in Dana Porter Library, call number BF76.7.P83 1994.

Online you can find some quick references at the following URLs:

APA essentials - [http://www.vanguard.edu/faculty/ddegelman/index.aspx?doc\\_id=796](http://www.vanguard.edu/faculty/ddegelman/index.aspx?doc_id=796) and <http://www.apastyle.org/>

APA Crib Sheet - <http://www.wooster.edu/psychology/apa-crib.html>

Citing Electronic References - <http://www.apa.org/journals/webref.html#Email>

Frequently asked Questions - <http://www.apa.org/journals/faq.html>

### **Policies and Procedures:**

◆ Students with disabilities: AccessAbility Services, located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

◆ **Mental Health:** The University of Waterloo, the Faculty of Environment and our Departments/Schools consider students' well-being to be extremely important. I recognize that throughout the term students may face health challenges - physical and / or emotional. Please note that help is available. Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services <https://uwaterloo.ca/counselling-services/> is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

◆ **Provincial Tests:** Students will be expected to follow the rules of the provincial tests. Rules for testing at the University of Waterloo will not apply, nor will accommodations be made during these tests that fall outside the provincial rules.

◆ **Religious Observances:** Students need to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

◆ **Unclaimed assignments:** Unclaimed assignments will be retained for one month after term grades become official in quest. After that time, they will be destroyed in compliance with UW's confidential shredding procedures.

◆ **Communications with Instructor and Teaching Assistants:** All communication with students must be through either the student's University of Waterloo email account or via Learn. If a student emails the instructor or TA from a personal account they will be requested to resend the email using their personal University of Waterloo email account.

◆ **Intellectual Property:** Students should be aware that this course contains the intellectual property of their instructor, TA, and/or the University of Waterloo. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides); Questions or solution sets from various types of assessments (e.g., assignments, quizzes, tests, final exams); and Work protected by copyright (e.g., any work authored by the instructor or TA or used by the instructor or TA with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, TA and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, TA or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow

distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

◆ Academic Integrity: Each student will be asked to read and sign the Academic Integrity form below. I will go over on the first day of the course: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. The University's guiding principles on academic integrity can be found here: <http://uwaterloo.ca/academicintegrity> ENV students are strongly encouraged to review the material provided by the university's Academic Integrity office specifically for students: <http://uwaterloo.ca/academicintegrity/Students/index.html> Students are also expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions.

Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. Students may also complete the following tutorial: <https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academic-integrity-tutorial>

When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>.

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance:

<https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>

Plagiarism: In particular, you should not plagiarize the work of others. Policy 71 defines plagiarism as: "The act of presenting ideas, words or other intellectual property of another as one's own. The use of other people's work must be properly acknowledged in all written material such as...essays, laboratory reports, design projects, statistical data, computer programs and research results. The properly acknowledged use of sources is an accepted and important part of scholarship. Use of such material without complete and unambiguous acknowledgement, however, is an offence under this policy." Students are expected to keep a copy of all materials used to prepare assignments in case of disputed work and should be able to provide working notes and original data for any assignment within 4 hours of this being requested.

In the context of this course, plagiarism includes (among other activities) submitting without appropriate acknowledgement any report (or part thereof, including software, designs, photos, computer images, models, drawings, maps, statistics, samples, results of lab or field work etc.) which has been submitted previously to any course anywhere by any person, submitting a report in which the production has been shared by more than one student and each has submitted it as their own without acknowledgement of the other's contributions, submitting any work created in whole or in part by another without the usual acknowledgement. Policy 71 states that one should not submit "an essay, report or assignment when a major portion has been previously



submitted or is being submitted for another course with the express permission of all the instructors involved”. **If in doubt, ask the course instructors or the teaching assistant if your intended assignment submission is acceptable.**

All suspected academic misconduct are investigated and formally reported to the Associate Dean, Undergraduate of Faculty of Environment.

◆ **Appeals:** A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 – (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) <https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-72>

◆ **Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 - Student Petitions and Grievances, Section 4, <https://uwaterloo.ca/secretariat/policies-procedures-guidelines/policy-70>. When in doubt please contact your Undergraduate Advisor for details. *This form may be used by course instructors as an educational tool to help their students maintain high standards of academic integrity (AI) in their work. Additional copies (as well as a version specifically for programming assignments) are available online at: <https://uwaterloo.ca/academic-integrity/sites/ca.academic-integrity/files/uploads/files/AIAcknowledgementForm.pdf>.*

Students are expected to know what constitutes AI, to avoid committing AI offences, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offence, or who need help in learning how to avoid offences (e.g., plagiarism, cheating) or about 'rules' for group work / collaboration should seek guidance from the course professor, TA, academic advisor, or the Undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to **Policy 71, Student Discipline**, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

A student who believes that he/she has a ground to appeal a discipline decision should refer to **Policy 72, Student Appeals**,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

A student who believes that a decision or action of a faculty member has been unfair or unreasonable should refer to **Policy 70, Student Petitions and Grievances**,

<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>