



# **ENVS\*1040 Natural History of the Great Lakes Region**

Fall 2023

Section(s): 01

School of Environmental Sciences

Credit Weight: 0.50

Version 1.00 - September 06, 2023

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## **1 Course Details**

### **1.1 Calendar Description**

This course is an introduction to the ecological regions, habitats and biodiversity of the Great Lakes watershed with a focus on Southern and Central Ontario. Beginning with a survey of the physical environment of the region, including topography, geomorphology and glaciation, soils, hydrology and climate, the course explores each of the major ecological regions and habitats of the watershed in terms of their defining characteristics and biological communities, including representative flora and fauna.

**Restrictions:** Restricted to students in BIESP, BIESP:C.

### **1.2 Course Description**

This course examines the natural history of the Great Lakes region focusing on Ontario south of the Clay Belt. In the weekly labs students will be in the field looking at four habitats (woodland, wetland, meadow and urban) using a variety of observational approaches. Lectures will discuss the diversity of the region's landscapes, geology, habitats and biological communities. There are two major assignments for the course. In the One Square Metre Project students will make weekly or more frequent observations of a site and document the biological community and seasonal changes that they observe. In the Virtual Road Trip Project students will plan a trip across the region and explore the different landscapes and biological communities they would encounter using a variety of online resources. Both assignments extend over the entire semester. The course concludes with students making a short oral presentation on a selected aspect of their One Square Metre Project.

### **1.3 Timetable**

Timetable is subject to change. Please see WebAdvisor for the latest information.

### **1.4 Final Exam**

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

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## 2 Instructional Support

### 2.1 Instructional Support Team

<b>Instructor:</b>	Jonathan Schmidt Associate Professor
<b>Email:</b>	jonschm@uoguelph.ca
<b>Office Hours:</b>	I will be available by email this semester. Students can also book an online appointment by email.
<b>Instructor:</b>	Andrew Young Assistant Professor
<b>Email:</b>	andrew.young@uoguelph.ca

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## 3 Learning Resources

All materials for the course will be available on the CourseLink site, including extended versions of the lecture presentations with additional material and suggested readings. In addition links to a variety of online resources will be provided.

All detailed assignment instructions and marking rubrics will be posted on the CourseLink site

**There is no textbook for the course.**

A wide variety of other field guides will be available for reference in hard copy or online.

Each student will be provided with a hand-held magnifier for the duration of the semester.

Students are expected to wear seasonally appropriate clothing for field work. Sandals and other open footwear should not be worn.

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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Recognize and characterize the major ecological regions and habitats of the Great Lakes Region with respect to their physical and biological features, including topography, geology, key species complexes, and their interrelationships.

2. Discuss the historical and current environmental impacts of human settlement and economic activities on the Great Lakes Region.
  3. Use a variety of observational and analytical methods to characterize the physical environment and biodiversity.
  4. Report on the interactions of the abiotic and biotic components of local ecological assemblages.
  5. Reflect upon and discuss their relationship to a locality in terms of their understanding of and interactions with its biotic and abiotic constituents.
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## 5 Teaching and Learning Activities

Lectures will be delivered online.

The expanded lecture notes will be provided on CourseLink.

All lab activities will occur in the Arboretum or elsewhere on campus. Meeting sites will be announced. Students should check the weather in advance and dress accordingly. Please have appropriate footwear - considerable walking will occur during most of the lab period.

### 5.1 Lecture

**Fri, Sep 8, 10:30 AM**

**Topics:** 1316 Graham Hall

#### **Minerals**

**Mon, Sep 11, 10:30 AM**

**Topics:** **Rocks 1: Igneous Rocks (with samples)**

**Wed, Sep 13, 10:30 AM**

**Topics:** **Rocks 2: Sedimentary Rocks (with samples)**

**Fri, Sep 15, 10:30 AM**

**Topics:** **Rocks 3: Metamorphic Rocks (with samples)**

**Mon, Sep 18, 10:30 AM**

<b>Topics:</b>	<b>Precambrian Geology 1: Hadean and Archaean</b>
<b>Wed, Sep 20, 10:30 AM</b>	
<b>Topics:</b>	<b>Precambrian Geology 2: Proterozoic</b>
<b>Fri, Sep 22, 10:30 AM</b>	
<b>Topics:</b>	<b>Paleozoic Geology</b>
<b>Mon, Sep 25, 10:30 AM</b>	
<b>Topics:</b>	<b>Ice Age Ontario</b>
<b>Wed, Sep 27, 10:30 AM</b>	
<b>Topics:</b>	<b>Post-Glacial Ontario – Soil Formation</b>
<b>Fri, Sep 29, 10:30 AM</b>	
<b>Topics:</b>	<b>Post-Glacial Ontario – Re-colonization</b>
<b>Mon, Oct 2, 10:30 AM</b>	
<b>Topics:</b>	<b>Great Lakes 1: Hydrology and Limnology</b>
<b>Wed, Oct 4, 10:30 AM</b>	
<b>Topics:</b>	<b>Great Lakes 2: Fish and Fisheries</b>
<b>Fri, Oct 6, 10:30 AM</b>	
<b>Topics:</b>	<b>Great Lakes 3: Eutrophication and Benthification</b>
<b>Wed, Oct 11, 10:30 AM</b>	
<b>Topics:</b>	<b>Lentic Environments 1: Hydrology of Small Lakes</b>
<b>Fri, Oct 13, 10:30 AM</b>	
<b>Topics:</b>	<b>Lentic Environments 2: Plankton and Benthos</b>
<b>Mon, Oct 16, 10:30 AM</b>	

<b>Topics:</b>	<b>Lentic Environments 3: Periphyton and Hydrophytes</b>
<b>Wed, Oct 18, 10:30 AM</b>	
<b>Topics:</b>	<b>Beaver Ponds</b>
<b>Fri, Oct 20, 10:30 AM</b>	
<b>Topics:</b>	<b>Rivers and Streams</b>
<b>Mon, Oct 23, 10:30 AM</b>	
<b>Topics:</b>	<b>Riverbanks and Lakeshores: Flora and Fauna</b>
<b>Wed, Oct 25, 10:30 AM</b>	
<b>Topics:</b>	<b>Shores of the Great Lakes: Dunes, Beaches, Estuaries and Bluffs</b>
<b>Fri, Oct 27, 10:30 AM</b>	
<b>Topics:</b>	<b>Marshes</b>
<b>Mon, Oct 30, 10:30 AM</b>	
<b>Topics:</b>	<b>Bogs and Peatlands</b>
<b>Wed, Nov 1, 10:30 AM</b>	
<b>Topics:</b>	<b>Lecture: Introduction to Forests and Forest Types</b>
<b>Fri, Nov 3, 10:30 AM</b>	
<b>Topics:</b>	<b>Forest Floor Community and Decomposition</b>
<b>Mon, Nov 6, 10:30 AM</b>	
<b>Topics:</b>	<b>Fungi and Forests: Saprophagous and Parasites</b>
<b>Wed, Nov 8, 10:30 AM</b>	
<b>Topics:</b>	<b>The Understory: Saplings, Cryptophytes and Geophytes</b>
<b>Fri, Nov 10, 10:30 AM</b>	

**Topics: The Vertebrate Fauna of the Forest Floor**

**Mon, Nov 13, 10:30 AM**

**Topics: Tree Trunks and Bark**

**Wed, Nov 15, 10:30 AM**

**Topics: The Tree Canopy 1: Herbivores**

**Fri, Nov 17, 10:30 AM**

**Topics: The Tree Canopy 2: Bats, Birds and Flying Squirrels**

**Mon, Nov 20, 10:30 AM**

**Topics: Tallgrass Prairie**

**Wed, Nov 22, 10:30 AM**

**Topics: Agroecosystems**

**Fri, Nov 24, 10:30 AM**

**Topics: Cliffs, Bluffs and Caves**

**Mon, Nov 27, 10:30 AM**

**Topics: Urban Ecology: Outdoors**

**Wed, Nov 29, 10:30 AM**

**Topics: Urban Ecology: Indoors**

**Fri, Dec 1, 10:30 AM**

**Topics: Last Class Gathering**

## **5.2 Lab**

**Thu, Sep 7, 2:30 PM**

**Topics: Location: Graham Hall**

**First class: Introduction to Course: Campus Observations**

**1 m2 and VRT projects**

**Thu, Sep 14, 2:30 PM**

**Topics:**

**Meadow Lab 1: Meadow Walkabout and Field Safety**

**Lecture: What is a meadow? Meadows, Alvars and Roadsides**

**Thu, Sep 21, 2:30 PM**

**Topics:**

**Meadow Lab 2: Meadow Plant BioBlitz**

**Slide Show: Common Meadow Plants – Native and Non-Native**

**Thu, Sep 28, 2:30 PM**

**Topics:**

**Meadow Lab 3: Meadow Insects and Arachnids BioBlitz**

**Slice Show: Common Arthropod Taxa of Meadows**

**Sat, Sep 30, 9:00 AM**

**Topics:**

**Aquatic Lab 1: Stream Field Trip**

**Water is Life**

**Thu, Oct 5, 2:30 PM**

**Topics:**

**No Lab**

**Thu, Oct 12, 2:30 PM**

**Topics:**

**Aquatic Lab 2: Pond Walk**

**Slide Show: Introduction to Vernal pools**

**Thu, Oct 19, 2:30 PM**

**Topics: Aquatic Lab 3: Pond and Stream Life BioBlitz**

**Slide Show: Aquatic Invertebrates**

**Thu, Oct 26, 2:30 PM**

**Topics: PROJECT DISCUSSION**

**Thu, Nov 2, 2:30 PM**

**Topics: Forest lab 1: Arboretum Forest Walk and Tree ID**

**Tree Identification**

**Thu, Nov 9, 2:30 PM**

**Topics: Forest Lab 2: Litter Organisms BioBlitz**

**Slide Show: Common Litter Invertebrates**

**Thu, Nov 16, 2:30 PM**

**Topics: Forest Lab 3: Forest Mensuration Exercise in Arboretum**

**Class Discussion**

**Thu, Nov 23, 2:30 PM**

**Topics: Lab: Urban Ecological Survey**

**Class  
Discussion**

**Thu, Nov 30**

**Topics: NO Class**

**Topics: FINAL PRESENTATIONS ON 1M2 PROJECT – Special  
Schedule during Final Exam**



## 6 Assessments

### 6.1 Assessment Details

#### **One Metre Square Location (0%)**

**Due:** Thu, Sep 14, Submitted Online

Provide instructors with location of site

#### **One Metre Square Progress Report 1 (5%)**

**Due:** Mon, Sep 25, Submitted Online

The first progress report is due on September 25, 2023. The report is worth 5% of the final course mark.

The report should contain the following:

- A map showing the location of the site
- A sketch map of the site
- Your journal entry for Week 1
- Examples of the plants, fungi, and animals that you have observed at the site.

We will be communicating with students individually to provide feedback after they submit their preliminary reports.

#### **One Metre Square Progress Report 2 (10%)**

**Due:** Mon, Oct 16, Submitted Online

The second progress report is due on October 16, 2023. The report is worth 10% of the final course mark.

The report should contain the following:

- Your journal entries for weeks 2, 3 and 4.
- A revised map of the site.

We will be communicating with students individually to provide feedback after they submit their preliminary reports.

**One Metre Square Progress Report 3 (5%)**

**Due:** Thu, Nov 16, Submitted Online

The third progress report is due on November 16, 2023. The report is worth 5% of the final course mark.

The report should contain the following:

- Any two journal entries for weeks 5, 6, 7 or 8.

We will be communicating with students individually to provide feedback after they submit their preliminary reports.

**One Metre Square Final Report (20%)**

**Due:** Fri, Dec 1, Submitted Online

**Learning Outcome:** 1, 3, 4, 5

**The final report and completed journal are worth 20% of the final course grade.**

Due Date:

December 1, 2023

Length:

1500-1800 words, *not including references*.

Content: The final report is an opportunity for you to summarize and reflect upon the observations you made during the semester, what you discovered about the site, and your own interactions with the site.

### **One Metre Square Presentation (15%)**

**Due:** TBD

**Learning Outcome:** 1, 3, 4, 5

At the end of the semester (**During the exam weeks, to be scheduled**) you will make a short presentation to the class about your site. The presentation should focus on aspects that you found important or unusual. It should not be a catalogue or list of species or observations. For example, you might choose to report on an interaction or association that intrigued you or on the relationship between the site and its surroundings or on the succession of changes that occurred over the course of semester. You may also discuss your personal relationship to the site and how this changed (or didn't), *but this is entirely optional*. The presentation should be about 10 minutes in duration. We will discuss preparing presentations during the class.

### **Virtual Road Trip Proposal (0%)**

**Due:** Wed, Sep 20, Submitted Online

Please provide the instructors with the proposed start and end points of your trip.

### **Virtual Road Trip Progress Report 1 (5%)**

**Due:** Wed, Oct 4, Submitted Online

**Learning Outcome:** 1, 2, 5

Grading: 5% of final course grade

Due Date: October 4, 2023

Content:

1. A draft map showing your proposed route.
2. A list of your pit stops (Appendix 1).

We will be providing feedback on these materials.

Please contact the instructors if you are encountering any difficulties or obstacles to completing the project or require clarification about the requirements.

**Virtual Road Trip Progress Report 2 (10%)**

**Due:** Mon, Oct 23, Submitted Online

**Learning Outcome:** 1, 2, 5

Grading: 10% of final course grade

Due Date: October 23, 2023

Content:

1. Drafts of two pit stop visitor guides or pamphlets.
2. A draft map showing your proposed route.
3. A sample of your travelogue chart.

We will be providing feedback on these materials. Please contact the instructors if you are encountering any difficulties or obstacles to completing the project or require clarification about the requirements.

**Virtual Road Trip Progress Report 3 (15%)**

**Due:** Mon, Nov 20, Submitted Online

**Learning Outcome:** 1, 2, 5

Grading: 15% of final course grade

Due Date: November 20, 2023

Content:

1. The drafts of five pit stop visitor guides not submitted with Progress Report
2. A sample of your travelogue (minimum of 250 words).
3. A revised map showing your proposed route.

We will be providing feedback on these materials. Please contact the instructors if you are encountering any difficulties or obstacles to completing the project or require clarification about the requirements.

**Virtual Road Trip Final Report (20%)**

**Due:** Fri, Dec 15, Submitted Online

**Learning Outcome:** 1, 2, 5

Due Date: December 15, 2021

Grading: 20% of final course grade

Content:

The final report consists of three parts:

1. A final version of the map of your Trip.
2. The final version of your travelogue or a narrative account of your trip.
3. A final version of the ten pit stops visitor's guides or pamphlets.

## 7 Course Statements

### 7.1 Late Assignments

Assignments that are submitted late without an approved reason (medical, personal) or prior approval of the instructors will have 10% deducted per day from their grades. Students encountering challenges in completing assignments on time are strongly encouraged to contact the instructors as soon as possible for support.

### 7.2 Safety

Students should be aware that we will be walking outdoors in the Arboretum for extended periods. Appropriate clothing and sun protection should be worn. Open shoes such as sandals are not suitable. Students with allergies (pollen, bees, etc.) should discuss any concerns and precautions with the instructors.

## 8 University Statements

### 8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

### 8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

### 8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

## 8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

## 8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

## 8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## 8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## 8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

## 8.9 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

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