

# Course Outline Form: Winter 2025

## General Information

**Course Title:** Terrestrial Ecosystem Ecology

**Course Description:** In this course, the ecosystem is the biological level of organization of interest. Living organisms and their physical environment are considered as components of an integrated system. Key ecosystem processes such as energy flow, carbon and nutrient cycling, and succession, and the controls on these processes, are examined. The impacts of human activity and global change on ecosystem structure and function are investigated.

**Credit Weight:** 0.5

**Academic Department (or campus):** School of Environmental Sciences

**Campus:** Guelph

**Semester Offering:** W

**Class Schedule and Location:** Mon, Weds, Fri 4:30 pm - 5:20 pm CRSC 116

## Instructor Information

Instructor Name: Dr. Catherine Dieleman

Instructor Email: cdielema@uoguelph.ca

## GTA Information

GTA Name: Kaitlin Pengelley

GTA Email: kpengell@uoguelph.ca

## Course Content

### **Specific Learning Outcomes:**

Upon successful completion of the course, students should be able to:

- Explain the major processes and mechanisms that control the flow and storage of energy and the cycling of material in an ecosystem (LO1)
- Critically analyze ecosystem ecology-related ideas, issues, arguments, and literature (LO2)
- Apply quantitative analyses to ecosystem data (LO3)

- Describe how human activity impacts ecosystems (LO4)
- Understand how ecosystem ecology differs from other areas of ecology (LO5)

In addition, the course aims to meet some of the learning objectives developed by the School of Environmental Sciences (SESLO) and the learning outcomes put forward by the University of Guelph (UGLO):

- Discover relationships within and between biotic and abiotic components of environments and their significance (SESLO1)
- Demonstrate the ability to find and critically evaluate scientific information (SESLO2)
- Effectively communicate ideas and information in graphic and written formats, while demonstrating fluency in the terminology of environmental sciences (SESLO3)
- Choose and utilize appropriate quantitative and qualitative methods to analyze and interpret environmental data (SESLO4)
- Demonstrate personal and professional integrity by respecting diverse points of view (SESLO5)
- Critical and creative thinking (UGLO1), literacy (UGLO2), communicating (UGLO3)

Students will have opportunities to achieve these objectives by completing the readings, assignments and exam, as well as by attending lectures.

**Proposed Weekly Lecture Schedule:**

This is a tentative schedule; the order of presentations and specific content may change

Section	Week	Learning Goals
Ecosystem Theory	1 -Jan 6	Course Overview
	2- Jan 13	Ecosystem Concept + Essay Writing Skills
Ecosystem Structure	3- Jan 20	Ecosystem Structure
	4- Jan 27	Soils
Ecosystem Function	5- Feb 3	Productivity + Respiration
	6- Feb 10	Primary Productivity – GPP
	Feb 17	Reading Week
	7- Feb 24	Review + Midterm
	8- Mar 3	Primary Productivity – NPP
	9- Mar 10	Decomposition
	10- Mar 17	Decomposition
	11- Mar 24	NEP
	12- Mar 31	Nitrogen Cycling + Wrap-Up

**Labs:** N/A

**Seminars:** N/A

**Course Assignments and Tests:**

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Lecture Participation	Variable	Half sheet exercise – 5% Active learning problem – 5%	SESLO2, SESLO5
Online discussion	<ul style="list-style-type: none"> <li>Initial discussion post <b>due Jan 17<sup>th</sup></b></li> <li>Final post <b>due Jan 31<sup>st</sup></b></li> </ul>	10%	LO1, LO2, SESLO2, SESLO3, SESLO5, UGLO1, UGLO2, UGLO3
Topic and annotated bibliography	<ul style="list-style-type: none"> <li><b>Due Friday Feb 14<sup>th</sup></b></li> </ul>	10%	
Midterm quiz	<ul style="list-style-type: none"> <li><b>Feb 28<sup>th</sup> online via Courselink</b></li> </ul>	15%	LO1, SESLO1, SESLO3
Data analysis assignment	<ul style="list-style-type: none"> <li><b>Due Wednesday Mar 14<sup>th</sup></b></li> </ul>	15%	LO1, LO2, SESLO2, SESLO3, SESLO5, UGLO1, UGLO2, UGLO3
Essay	<ul style="list-style-type: none"> <li><b>Due Mar 28<sup>th</sup></b></li> </ul>	20%	LO3, SESLO3, SESLO4
Final exam	<ul style="list-style-type: none"> <li><b>TBD Online via Courselink</b></li> </ul>	20%	LO1, LO4, LO5, SESLO1, SESLO3

### **In-class participation component**

During the synchronous lectures there will be multiple opportunities to actively engage with the course material over a variety of tools. You will be introduced to these tools during the first lecture of the term. five percent of your grade will be based on your engagement with these activities. The other five percent of your participation mark will be based off 'half sheet exercises' that occur once per week during lecture. During the half-sheet exercise, you will provide your initial answer to a given question at the start of lecture, and a revised version at the end lecture using the quiz function on Courselink. To receive credit for this exercise both the initial and revised answers must be provided with evidence of original thought (i.e. answers must be relevant, answers must not be copied and pasted from provided lecture materials, classmates, or internet sources). Your lowest 10% of in-class learning activities and your half sheet exercises will be dropped to adjust for missed synchronous lectures. If you cannot consistently attend synchronous lectures, please contact the course instructor via email as soon as possible to discuss.

### **Online participation component**

**Additional Notes (if required):** N/A

**Final examination date and time:** (Online, open book exam will be due sometime during the exam period)

**Final exam weighting:** 20%

## **Course Resources**

### **Required Texts:**

Chapin, Matson and Vitousek. 2012. Ecosystem Function, 2<sup>nd</sup> Edition, Springer, 529p.

Available as a free online resource through the U of G library.

**Recommended Texts:** N/A

**Lab Manual:** N/A

### **Other Resources:**

Other course material will be available online through Courselink.

**Field Trips:** N/A

**Additional Costs:** N/A

## **Course Policies**

### **Grading Policies:**

Assignments are to be submitted online via Courselink dropbox before 11:59 pm on the due date unless otherwise stated. If you require an extension on an assignment, please make a request to Dr. Dieleman in advance of the due date. Assignments submitted after the due date without an approved extension will receive a 10% mark reduction per day the assignment is late. Assignments submitted 10 days after the posted due date without an approved an extension will not be accepted for grading. Secondary extensions (an extension to an already extended due date) are not provided except in the case of exceptional circumstances.

**Course Policy on Group Work:** All members of the group are expected to contribute equally, and will be given the same grade on any group-work assignments.

### **Course Policy regarding use of electronic devices and recording of lectures:**

All lecture slides will be posted to Courselink for later viewing and review. Independent electronic recording of classes is expressly forbidden without consent of the instructor. When

recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

## **University Policies**

### **Academic Consideration:**

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

### **Academic Misconduct:**

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 discourages misconduct. 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.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII \(Undergraduate Degree Regulations and Procedures\) of the Undergraduate Calendar](#).

### **Accessibility:**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability

or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [sas@uoguelph.ca](mailto:sas@uoguelph.ca) or visit the [Student Accessibility Services website \(http://www.uoguelph.ca/csd/\)](http://www.uoguelph.ca/csd/).

### **Course Evaluation Information:**

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](#) for more information.

### **Additional Course Information**

N/A