

COURSE OUTLINE: FALL 2026

COURSE TITLE:	PLANT ECOLOGY OF DISTURBED HABITATS
COURSE CODE:	BIOL 4115 (FAO), BIOL 5111 (FAO)
CREDITS:	0.5
WEEKLY HOURS:	3.0 (2 lectures per week: tues & thurs 14h30 to 15h50)
LAB:	3.0 (wed 14h30 to 17h30)
ROOM:	OA 2018 (lecture); OA3002 (lab)
REQUIRED TEXT:	Walker, L. R. (2012). <i>The Biology of Disturbed Habitats</i>. Oxford University Press – any edition available to you is fine; additional readings & other course materials will be available via <i>desire2learn</i> https://www.vitalsource.com/en-ca/products/the-biology-of-disturbed-habitats-lawrence-r-walker-v9780191625329?duration=180&gclid=EAlaIQobChMItL3Qr8bZ6wIVlueGCh3FYQ_PEAkYASABEgLk_PD_BwE (\$62.99)
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1. COURSE DESCRIPTION

Habitat and plant community response to natural and human induced ecosystem disturbances will be discussed with special reference to type, intensity and frequency of disturbance. Particular attention will be focused on regeneration strategies of dominant plants, species diversity and composition, near-ground microclimate, and changes in soil physical and chemical properties. Vulnerability and resilience of ecosystem integrity will be explained on the basis of biotic and abiotic factors with special reference to boreal forests. Remediation of adverse ecological impacts resulting from human induced disturbances will be discussed. Technical writing based on field and laboratory studies, term papers, and seminar presentations are required components of the course.

2. COURSE GOALS

You will be introduced to key theoretical and conceptual foundations of **plant disturbance ecology** and develop your ability to critically evaluate how natural and anthropogenic disturbances influence ecological systems. Particular attention will be given to:

- (a) developing an advanced understanding of different types of disturbances and the key processes and mechanisms that initiate, shape, and propagate disturbance events;
- (b) evaluating potential approaches to disturbance planning and management options in the context of changing environmental conditions;
- (c) critically assessing the strengths, limitations, and applications of environmental models that characterize disturbance regimes and predict their ecological consequences; and
- (d) recognising and critically evaluating the complexities and uncertainties associated with understanding, managing, and responding to both historical and novel disturbance events.

Analytical, technical, and applied skills

You will:

- (a) develop the ability to apply ecological concepts and principles to real-world disturbance management cases and environmental issues;
- (b) strengthen critical reading and analytical skills through evaluation and interpretation of assigned course materials;

- (c) develop quantitative and technical skills by analysing, interpreting, and communicating ecological data and model outputs related to disturbance patterns and processes;
- (d) improve written communication skills by clearly and concisely responding to questions associated with assigned course readings;
- (e) strengthen oral communication skills through active participation in class discussions and other collaborative learning activities; and
- (f) develop teamwork and project management skills through group-based projects and collaborative lecture and lab-based activities.

3. MODES OF INSTRUCTION

Assigned readings, lectures, learning modules, group discussions, student-led presentations, and multimedia resources are employed. Students are expected to prepare for each class by completing the assigned readings and learning materials available through D2L. Class time will build upon this foundation by emphasizing important, challenging, and/or more conceptually complex topics through *lecture, discussion, and active learning activities*.

During the first few weeks, classes will generally begin with an instructor-led introduction to the key concepts and themes associated with the assigned materials, followed by opportunities for questions and discussion. As the course progresses, greater emphasis will be placed on **student-led learning** and **collaborative discussion**. Beginning around Week 4, student groups will lead and/or contribute to presentations addressing the core concepts, ideas, and issues associated with assigned readings. These presentations will be followed by structured and open-ended discussions that encourage students to critically evaluate the readings, consider different perspectives, and explore their ecological and management implications. Guest speakers may be invited to provide additional perspectives and expertise on selected topics.

Notice for Recording Lectures & Class Activities

In BIOL 4115, in the context of remote instruction and participation, video and audio recordings of class activities will be made to ensure students' and instructors' easy and comprehensive access to those activities. The recordings are confidential and are intended only for the use of the course students and instructors. They may otherwise not be used or disclosed. During recording, to protect others' privacy, each student should ensure that no one else is present in the location where they are being recorded without that non-student's consent. The recordings are made under the authority of sections 3 and 14 of The Lakehead University Act, 1965. Questions about the collection of the images and sounds in the recordings may be directed to [Dr Mike Rennie](#), Chair of Biology, 955 Oliver Road, Thunder Bay, ON, Canada, P7B 5E1, (807) 343-8927.

https://www.lakeheadu.ca/sites/default/files/policies_procedures/Student%20Code%20of%20Conduct%20-%20Academic%20Integrity.pdf

4. COURSE OUTLINE

All classes will incorporate interactive learning activities (**lecture, discussion***, **question & answer, DLTs, and other in-class activities**). *Students are expected to complete assigned readings and other precatory materials before each class* so that time can be used to explore, apply, and critically evaluate key concepts in greater depth.

*topics explored during discussion periods may include disturbance x disease interactions and epidemics, unexpected ecological consequences of extreme disturbance events, warfare as an environmental disturbance, climate change and disturbance regimes, social dimensions of disasters, environmental risks & impacts on vulnerable populations, and other emerging issues in disturbance ecology.

The tentative schedule is as follows:

Week 1	Sep 10	Welcome back! Foundations of Plant Disturbance Ecology Readings (R): Chapter 1
Week 2	Sep 15 17	Terrestrial Habitats Disturbance Regimes & Dynamics Assignment 1 (A1) R: Chapters 2, 5, 7, 9
Week 3	Sep 22 24	Aquatic Habitats (Chap 3) <i>assign dates for discussion periods</i> Discussion period 1 R: Chapter 3; A1
Week 4	Sep 29 Oct 1 4	Modelling Disturbances across Landscapes Introduction to Ordination Discussion period 2### (G1, G2) A1 – part A report due 22h00 R: A2, A3
Week 5	Oct 6 Oct 8 11	Ecological Consequences of Disturbance – impacts on ecological processes Discussion period 3### (G3, G4) A1 – part B report due 22h00 R: Chapter 5; A4, A5



Week 6	Oct 13 15	READING WEEK READING WEEK
Week 7	Oct 20 22	Anthropogenic Habitats Disturbances across the Landscape – a review R: Chapter 4
Week 8	Oct 27 29	MIDTERM Discussion period 4### (G5, G6) R: A6, A7
Week 9	Nov 3 5	Module Module
Week 10	Nov 10 12 15	Module continued Managing Natural Disturbances – towards a safer environment Seminar Abstract - due 22h00 R: Chapter 9
Week 11	Nov 17 19	Seminars Seminars
Week 12	Nov 24 26 29	Seminars Seminars Module - due 22h00
Week 13	Dec 1 3	Seminars Seminars
Exam period		

= student-led discussion

5. EVALUATION OF ACHIEVEMENT

MIDTERM: **15 %**

DISCUSSION/SEMINARS:

- **WHEN LEADING DISCUSSION¹:** **8 %**
- **WHEN ACTIVELY PARTICIPATING²:** **7 %**
^{1,2} (see details below)

ASSIGNMENTS: **10 %**

MODULE: **10 %**

SEMINAR: **10 %**

LAB REPORTS: **40 %**

Late submissions of assignments, tests, &/or exams will be subjected to a **25 % reduction to your grade per day**

Table 1. Due dates for all graded components of our course

	Assignment	Due date	Proportion of grade
1	Discussion 1 (Q&A)	Sep 24 (before class)	1 (+1 for participation)
2	Discussion 2 (Q&A)	Oct 1 (before class)	1* (+1 for participation)
3	Landscape disturbance (A1 - part A)	Sun Oct 4	5
4	Discussion 3 (Q&A)	Oct 8 (before class)	1* (+1 for participation)
5	Landscape disturbance (A1 - part B)	Sun Oct 11	5
6	MIDTERM	Oct 27	15
7	Discussion 4 (Q&A)	Oct 29 (before class)	1* (+1 for participation)
8	Seminar Abstract	Sun Nov 15	2
9	Module	Sun Nov 29	10
10	Leading Discussion	tbd	8
11	Seminar	tbd	8
12	LABS	tbd	40
	TOTAL		100

¹**Leading discussion***: after selecting a group to be a part of (G1 to G4), your group will be responsible for *leading* the discussion in one of weeks 4 to 8.

Leading discussion involves:

- (a) reading your assigned article,
- (b) creating a .ppt presentation that provides a short summary of the article for the class (5 to 7 min), and
- (c) encouraging discussion & dialogue by asking questions and offering insight & opinions on the subject matter (23 to 25 min); i.e., create a set of Qs (& potentially group activities) that can help to spur discussion on ideas/issues/concerns/etc. addressed or highlighted in the article

²**Participation**: for the remaining other weeks during discussion periods, you need to prepare for and actively participate in the discussion.

To participate, you will need to:

- (a) read & prepare notes on the assigned articles that will help you participate in the discussion. Please *do not* submit your notes with your Q&A assignment
- (b) arrive to class with **one question + answer** related to each article. Thus, one Q&A is required for each of the two articles scheduled for the day – your **question (Q) + answer (A)** should be printed or be immediately available on your laptop/device so that you have a copy in class. Please ensure to **cite the original article** and any other peer-reviewed article(s) that you reference to help support any statements &/or arguments that you make in your responses (in [APA](#) formatting)^Δ. Additionally, an electronic copy of your two Q&As should be submitted via D2L dropbox (Assignments folder) **prior to the start of discussion**,^{ΔΔ} and
- (c) actively participate.

^Δ your grade for the Q&A component will depend primarily on how effectively you use the peer-reviewed evidence to support your argument;
i.e., **evidence → interpretation → connection to argument**

^{ΔΔ} during the discussion period wherein you are leading discussion, you **do not have to complete** the **Q&A** component for either of the articles scheduled to be discussed; nb., there are two groups per day; you do NOT need to submit Q&As via D2L that day, but you will still need to read the other group's article and participate in the discussion

GRADING SCHEME:

A+	90 to 100%	Outstanding understanding of the course concepts including integration of materials and ideas, ability to apply knowledge to situations
A	80 to 89%	
B	70 to 79%	Above average to excellent knowledge, ability to apply knowledge to situations
C	60 to 69%	Satisfactory knowledge including ability to recognise and apply major course concepts, and to progress to next level of course
D	50 to 59%	Some grasp of course concepts; will likely encounter difficulty with higher levels
E	40 to 49%	Failed to meet minimum requirements of the course
F	1 to 39%	Failure
F	0	Failure resulting from academic dishonesty

6. NETIQUETTE

As in a traditional classroom, it is important to maintain a **positive, safe, inclusive, dynamic, and constructive online learning environment**. Students are encouraged to participate actively in online discussions by sharing ideas, asking questions, and respectfully engaging with peers. Because disagreement and debate are important components of academic learning, you are not expected to always agree with your instructor or classmates. You are, however, expected to engage with differing ideas respectfully and constructively. When commenting on discussion posts, please focus on the ideas, evidence, and criticisms being presented as personal attacks on an individual are not permitted.

The following guidelines apply to all online course interactions:

- **Be respectful and professional.** Communicate with classmates and the instructor in a courteous and inclusive manner. Do not use offensive language. Do not dominate any discussion. Give other students the opportunity to participate. Using humor is acceptable but please be careful that it is not misinterpreted. For example, are you being humorous or sarcastic?
- **Critique ideas not people.** Questioning, challenging, and constructively critiquing ideas and arguments are encouraged; personal attacks, insults, or demeaning comments are not permitted
- **Support your contributions.** Where appropriate, use evidence, course materials, or relevant examples to support your perspectives and arguments
- **Be open to different perspectives.** Listen to and consider viewpoints that differ from your own, particularly when discussing complex or controversial environmental and social issues. Be willing to express perceived minority opinions. Minority opinions must be respected.
- **Consider your audience.** Written communication can sometimes be interpreted differently than intended. Before posting, consider whether your wording is clear, respectful, and appropriate for an academic learning environment. Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting. Popular emoticons such as 😊 or 😞 can be helpful to convey your tone but do not overdo or overuse them.
- **Contribute meaningfully.** Active participation is encouraged, but quality and thoughtfulness are more important than simply posting frequently.

Guidelines adapted from:

Mintu-Wimsatt, A., Kernek, C., & Lozada, H. R. (2010). Netiquette: Make it part of your syllabus. *Journal of Online Learning and Teaching* 6(1). Retrieved from http://jolt.merlot.org/vol6no1/mintu-wimsatt_0310.htm

7. WELLBEING

As a university student, you may sometimes experience mental health concerns or stressful events that interfere with your academic performance and negatively impact your daily activities.

All of us can benefit from support during times of struggle. If you or anyone you know experiences academic stress, difficult life events or feelings of anxiety or depression, Lakehead has resources available to you. Check in with the [WellU Key](#) to find the mental health resources you are looking for.

Remember that getting help is a smart and courageous thing to do - for yourself, for those you care about, and for those who care about you. Getting support sooner rather than later is almost always helpful.

8. STUDENT RESPONSIBILITIES

Students are expected to participate in all course activities and complete all assignments on time. Late assignments carry a 25% reduction in value per day, no exceptions. This may seem rather severe, but it's just not fair to those who hand assignments in on time.

General regulations

It is the responsibility of each student registered at Lakehead University to be familiar with, and comply with all the terms, requirements, regulations, policies and conditions in the Lakehead University [Academic Calendar](#). This includes, but is not limited to, Academic Program Requirements, Academic Schedule of Dates, University and Faculty/School Policies and Regulations and the Fees and Refund Policies and Schedules

Student Support

There are many resources available to support our students. These include but are not limited to:

- [Health and Wellness](#)
- [Student Success Centre](#)
- [Student Accessibility Services](#)
- [Library](#)
- [Academic Support Zone](#) (Writing and Math Tutoring Centre)



Lakehead University is committed to achieving full accessibility for persons with disabilities/medical conditions. Part of this commitment includes arranging academic accommodations for students with disabilities/medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability/medical condition and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please email sas@lakeheadu.ca or visit <https://www.lakeheadu.ca/faculty-and-staff/departments/services/sas>

Exam/Assignment Integrity

I understand and agree that:

- (a) Unless otherwise allowed by the course instructor, I must complete the assignments in this course without the assistance of anyone else.
- (b) Unless otherwise allowed by the course instructor, I must not access any sources or materials (in print, online, or in any other way) to complete any course exam.

I further understand and agree that, if I violate either of these two rules, or if I provide any false or misleading information about my completion of course assignments or exams, I may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University's academic values.

Academic Integrity

A breach of Academic Integrity is a serious offence. The principle of Academic Integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students are strongly advised to familiarize themselves with the Student Code of Conduct - Academic Integrity ("[The Code](#)") - and, in particular, sections 26 and 83 through 85. Non-compliance with the Code will NOT be tolerated in this course and the Code will be

adhered to in terms of disciplinary action. The Code provides a full description of academic offences, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

Academic dishonesty (plagiarism):

The most common offense under the [Academic Code of Conduct](#) is plagiarism.

This could be material copied word for word from books, journals, internet sites, professor's course notes, etc. It could be material that is paraphrased but closely resembles the original source. It could be the work of a fellow student, for example, an answer on a quiz, data for a lab report, a paper or assignment completed by another student. It might be a paper purchased through one of the many available sources. Plagiarism does not refer to words alone - it can also refer to copying images, graphs, tables, and ideas. "Presentation" is not limited to written work. It also includes oral presentations, computer assignments and artistic works. Finally, if you translate the work of another person into French or English and do not cite the source, this is also plagiarism.

I.E., DO NOT COPY, PARAPHRASE OR TRANSLATE ANYTHING FROM ANYWHERE WITHOUT CITING WHERE YOU OBTAINED IT!

[University guidelines on the matter:](#)

The University takes a most serious view of offences against academic honesty such as plagiarism, cheating and impersonation. Penalties for dealing with such offences will be strictly enforced.

A copy of the "[Code of Student Behaviour and Disciplinary Procedures](#)" including sections on plagiarism and other forms of misconduct may be obtained from the Office of the Registrar.

The following rules shall govern the treatment of candidates who have been found guilty of attempting to obtain academic credit dishonestly.

- (a) The minimum penalty for a candidate found guilty of plagiarism, or of cheating on any part of a course will be a zero for the work concerned.
- (b) A candidate found guilty of cheating on a formal examination or a test, or of serious or repeated plagiarism, or of unofficially obtaining a copy of an examination paper before the examination is scheduled to be written, will receive zero for the course and may be expelled from the University.

Students disciplined under the [Code of Student Behaviour and Disciplinary Procedures](#) may appeal their case through the [Judicial Panel](#).

Note: "[Plagiarism](#)" shall be deemed to include:

1. Plagiarism of ideas as where an idea of an author or speaker is incorporated into the body of an assignment as though it were the writer's idea, i.e. no credit is given the person through referencing or footnoting or endnoting.
2. Plagiarism of words occurs when phrases, sentences, tables or illustrations of an author or speaker are incorporated into the body of a writer's own, i.e. no quotations or indentations (depending on the format followed) are present but referencing or footnoting or endnoting is given.
3. Plagiarism of ideas and words as where words and an idea(s) of an author or speaker are incorporated into the body of a written assignment as though they were the writer's own words and ideas, i.e. no quotations or indentations (depending on format followed) are present and no referencing or footnoting or endnoting is given.

A listing of University Regulations can be found at:

<https://www.lakeheadu.ca/programs/graduate/regulations>

The code of student behaviour and disciplinary procedures (effective May 1, 2019) can be found at:

<https://www.google.com/url?client=internal-element-cse&cx=012906367850555877284:uxo0wfmf8ra&q=https://www.lakeheadu.ca/sites/default/files/uploads/106/Item%25204.1.1%2520c%2520-%2520Code%2520of%2520Student%2520Behaviour%2520and%2520Disciplinary%2520Procedures.pdf&sa=U&ved=2ahUKEwjE9-jzrb-AAxUrE1kFHcbiA0AQFnoECAEQAAQ&usg=AOvVaw3GGLgjP1narXf2SciHB4y->

AI Policy (GenAI use)

Generative artificial intelligence (Generative AI or GenAI) is a category of AI systems capable of generating text, images, or other media in response to prompts. These systems include ChatGPT and its variant Bing (built by OpenAI) and Bard (built by Google) among several others. Other generative AI models include artificial intelligence art systems such as Stable Diffusion, Midjourney, and DALL-E.

GenAI tools can provide valuable assistance and support in academic work. However, it is essential to use them responsibly and ethically. The following information and guidelines apply to the use of AI-based tools in this course:

- a. **Student Responsibility** – It is the responsibility of the student to understand the limitations of AI-based tools. While these tools can provide suggestions and insights, final decisions and critical thinking should come from the student's own understanding and effort. Before submitting, review your work with this in mind. If you don't understand what type of GenAI usage is appropriate, ask the course instructor for clarification.
- b. **Formative Usage** – In this class, you may use GenAI for formative, but not summative, work. That means it can be used as a “possibility engine” (brainstorm tool), a “study buddy,” a “collaboration coach,” a “guide on the side,” a “personal tutor,” a “co-designer,” etc. to help you learn course content, but it cannot be used as the primary vehicle for any work that is submitted for marks or evaluation. (See UNESCO's [“ChatGPT and Artificial Intelligence in Higher Education Quick Start Guide,”](#) page 9, for explanations and examples of these and other roles GenAI can productively serve in a formative capacity.)
- c. **Error & Bias** – AI content is created by computer algorithms that have been trained using large amounts of data. The AI learns from patterns and examples in the data to generate new content that resembles what it has been trained on. If the training data used to train the AI model is biased or limited in scope, the AI may reproduce content that is inaccurate, incomplete, offensive, and/or biased. Students should weigh this as they consider material produced by AI.
- d. **Trustworthiness** – Generative AI can be vulnerable to manipulation and misuse. It can be used to generate fake news, misinformation, or deepfake content, which can have harmful consequences. Students should check AI generated content against reputable sources.
- e. **Plagiarism** – Since [writing and critical thinking ability] are learning outcomes of this course, all work submitted for evaluation must be the student's original work. Using the work of others (including content curated/generated by AI) without proper citation is considered plagiarism. See [“Citing Artificial Intelligence”](#) for assistance with correct documentation.

- f. **Citation of Sources** – If you use material generated by an AI program for an assignment in this course, it must be cited like any other source (with due consideration for the quality of the source, which may be judged as poor). Failure to do so will be considered a violation of academic integrity. [See Student Code of Conduct – Academic Integrity.](#)

8. LAND ACKNOWLEDGEMENT:

Lakehead University respectfully acknowledges its campuses are located on the traditional lands of Indigenous peoples.

Lakehead Thunder Bay is located on the traditional lands of the Fort William First Nation, Signatory to the Robinson Superior Treaty of 1850. Lakehead Orillia is located on the traditional territory of the Anishinaabeg. The Anishinaabeg include the Ojibwe, Odawa, and Pottawatomi nations, collectively known as the Three Fires Confederacy.

Lakehead University acknowledges the history that many nations hold in the areas around our campuses, and is committed to a relationship with First Nations, Métis, and Inuit peoples based on the principles of mutual trust, respect, reciprocity, and collaboration in the spirit of reconciliation.