

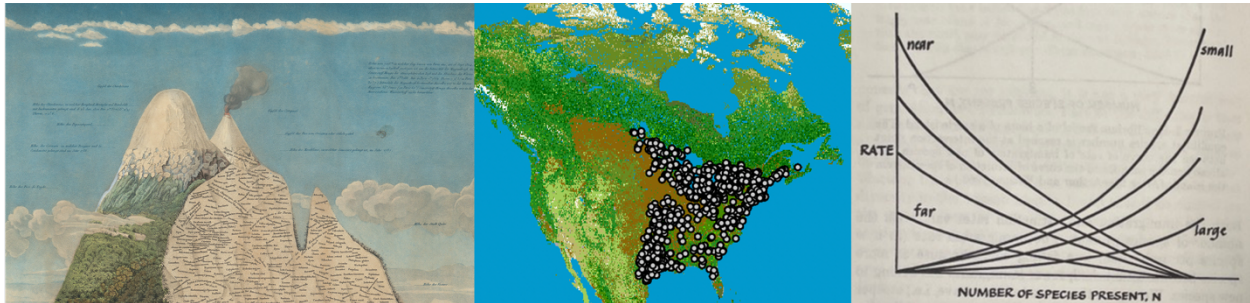
BIOL3151 (Orillia) Biogeography

Course Syllabus

Winter 2024

"If we travel beyond our district in various directions we shall almost certainly meet with something new to us; some species which we were accustomed to see almost daily will disappear, others which we have never seen before will make their appearance"

– A.R. Wallace



Left: Alexander von Humboldt's 1807 Tableau Physique. Public Domain.

Middle: Occurrences of the Gray Treefrog (*Dryophytes versicolor*) from GBIF

Right: That Graph. MacArthur & Wilson. 1967. *The Theory of Island Biogeography*. Princeton UP.

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.

WHO WILL BE TEACHING AND HOW TO I CONTACT THEM?

Instructor:

Dr. Adam Algar (he/him)

aalgar@lakeheadu.ca

Office: As I am based at the Thunder Bay campus, all meetings will take place on Zoom

Office hours: I don't set office hours as I find students rarely use them. However, I am happy to meet with you – please email me to make a Zoom appointment.

WHEN AND WHERE IS CLASS?

All times local time in Orillia, Ontario.

When: Tuesdays & Thursdays, 11:30am-1:00pm

Where: All sessions will be on Zoom. You can find the link in the D2L calendar, or through the D2L Zoom Tool.

WHAT ARE THE EXPECTATIONS FOR COMMUNICATION?

What you can expect from me:

I try to be as accessible as possible for my students, given the need to balance teaching, research and other requirements of my role.

Meeting with me: I try to be available after class to answer questions. This time is best used for short discussions or questions about the course material. If you have a longer, or more in-depth question or point for discussion, email me (or speak to me after class) and we can set up a time to meet on Zoom.

Email: I reliably check and reply to emails between 8:30am and 5:00pm on weekdays (excluding holidays). I do not reliably check or reply to emails in the evenings, on weekends, or on holidays. I do my best to reply to emails within two working days (i.e. excluding weekends and holidays), but it's not always possible. If you've emailed me about something and it has been more than two working days, please send me a polite reminder as sometimes an email slips down my inbox by accident. Please don't send a reminder before two working days has passed. The implication of the above is that **if you email me the day before a due date, then chances are you won't get a reply before the deadline, so plan ahead.** If something unforeseen happens that affects your ability to complete assignments, then email me as soon as you can.

What I expect from you:

Other than verbal announcements in class, I will communicate with the class via the Announcements feature on D2L. **It is your responsibility to check D2L regularly for announcements** especially regarding possible changes to delivery, scheduling, etc. **I also expect you to fully read the syllabus.** Similarly, I also expect that you check your university email address regularly as in rare, but important, circumstances I may use email as well as the Announcements tool.

WHAT WILL I BE LEARNING?

During the course we will focus on general, geographical patterns within and between species. We will learn the major theories to explain these patterns and the key processes underlying them. We will also focus on scientific method and interpreting scientific findings. A substantial focus will be placed on effectively reading primary research articles. Lectures will include substantial group discussion.

Learning Outcomes

By the end of the course you will be able to:

- 1) Identify key biogeographical patterns
- 2) Understand key theories proposed to explain biogeographical patterns
- 3) Interpret and communicate biogeographical research findings
- 4) Synthesize and evaluate evidence to reach conclusions about open biogeographical questions
- 5) Communicate scientific ideas and findings in verbal and written form

WHAT WILL I BE READING?

There is no textbook for this course. If you would like to read a textbook to get up to speed on fundamentals or pursue some topics in more detail, then any recent Biogeography textbook will suffice. I make no specific recommendation.

We will focus on reading the primary scientific literature, i.e. journal articles. Some will outline new cutting-edge discoveries, others classic problems, and others will present fundamental disagreement and debate among scientists. All will be informative and thought provoking.

References will be given for all research mentioned in class and you are encouraged to read and consider these independently. **There will also be a set of assigned 'critical readings' which you MUST read independently and whose content may appear on assessments.** I encourage you to explore the literature more deeply on your own, following your curiosity and interest.

HOW WILL I BE EVALUATED?

Open Book Quizzes (1 x 7.5%, 3 x 12.5%, 45% total)

There are 4 open book quizzes throughout the term. They will draw on material from lectures, critical readings and presentations. Quizzes must be completed within the allocated time, by the due date. **Quizzes not completed by the due date will receive a zero (0%).** They are open book but **must be completed individually**. Quizzes will be administered through the D2L site. The sessions covered by each quiz will be explained in class.

Emerging Research Presentation (20%)

This is an oral presentation (with slides) **done in pairs**. You and your partner will select a journal article on a biogeographical topic and present it to the class. This will include background/context, hypotheses and predictions, methods, results, discussion, and critical review. **There is a 15 minute time limit.** Details will be presented in class.

Presentation Participation (5%)

This participation mark is based on your attendance and engagement with your peers' presentations. In addition to attendance at all presentations, to show engagement you are expected to ask at least one relevant question on 2 different presentation days.

Final Paper (30%)

You will review the scientific evidence for and against an ecogeographic rule to determine its validity. You are free to choose from any published ecogeographic rule **except the 'island rule'**. The paper **must be completed individually**. You are required to go beyond the assigned and recommended readings for the course to find relevant examples and references from the primary scientific literature. **The word limit is 2500 words**. Please read the section on word limits below very carefully. Start planning early and take advantage of opportunities to discuss your essay with me. More details will be given in class.

Word and Time Limits

- Written assignments have strict word limits; presentations have strict time limits
- Word limits exclude the title, abstract, reference list and any figures or tables (and their captions) you choose to include.
- Time limits exclude the question and answer period.
- The marker will not read beyond the word limit and the moderator will stop presentations at the time limit, so if you exceed these, your mark will reflect an incomplete piece of work.
- You must report the word count on your paper; I will be sensible regarding the fact that different software can give slightly different word counts.
- Falsely reporting a lower word count to make your work appear within the limit will be considered academic dishonesty and investigated as a potential breach of academic integrity.

Rubrics

Marking rubrics, where appropriate, will be circulated in advance of due dates.

Due Dates

- Due dates are subject to change, but will never be earlier than listed below
- All times below are local time in Orillia.

Open Book Quizzes

Quiz 1: 23:59 Friday, Jan 26

Quiz 2: 23:59 Friday, February 16

Quiz 3: 23:59 Friday, March 15

Quiz 4: 23:59 Tuesday, April 2

Presentation

Slide submission: **11:30am (11:30am)** Tuesday February 27

In class presentations: February 27, 29, and March 5, 7

Final Paper

Ecogeographic Rules paper: 23:59 Tuesday April 9

Individual work

Discussion of ideas, concepts, and methods are a valuable part of science and I encourage you to discuss topics and ideas with your peers and instructor. Indeed, our in-class sessions will involve a substantial amount of group discussion. Despite this, **all assessments must be completed individually unless I specify otherwise**.

Late Penalties and Extensions

- Late submission of written work (e.g. papers, presentation slides) will be penalized 5% per day (including weekends and holidays).
- Online quizzes must be completed by the deadline or receive a mark of zero (0%).
- Failure to deliver an oral presentation on the scheduled date will result in a mark of zero (0%).

The preceding penalties will be strictly applied unless there is a valid reason (e.g. illness, family). Normally, requests for an extension or penalty waiver should be made before the due date, unless the circumstances underlying the request make this infeasible.

Assignment & Exam Integrity

By taking this course, you agree to the following:

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.

GenAI Use Prohibited

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 variants 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.

Any use of GenAI systems to produce assignments for this course is not permitted. All work submitted for evaluation in this course must be the student's original work. The submission of any work containing AI generated content will be considered a violation of academic integrity ("Use of Unauthorized Materials").

Accommodations and Accessibility

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>

I aim to ensure that all students can achieve their best possible results, so if you have circumstances affecting your assessments, please speak to me as soon as you can.

For students registered with Student Accessibility Services, Student Accessibility Services will get in touch with me about your accommodations. Thus, there is no requirement that you speak to me about them directly, but you are welcome to do so if you wish, especially if you have any concerns about getting accommodations in place early. Also, please feel free to feed back to me during the semester regarding accessibility and accommodations, either directly or through your Accessibility Advisor, so that we can make changes or adjustments that will improve accessibility and better implement accommodations.

WHAT WILL WE COVER?

The topics and timings below are a guide only and are subject to change

Week	Week Start	Tuesday	Thursday	Assessment
1	Jan 8	Introduction/Syllabus	Scientific Method	
2	Jan 15	Ranges & Niches	Dispersal	
3	Jan 22	Emerging Research I	Classic & Emerging Theory	Quiz 1
4	Jan 29	Modelling Distributions I	Modelling Distributions II	
5	Feb 5	Range shifts	Emerging Research II	
6	Feb 12	Niche Evolution	Biogeography of Plague	Quiz 2
7	Feb 19	Study Week	Study Week	
8	Feb 26	Presentations	Presentations	Slides due / Presentations
9	Mar 4	Presentations	Presentations	Presentations
10	Mar 11	Diversity Gradients I	Diversity Gradients II	Quiz 3
11	Mar 18	Island syndromes and the island rule	Foundations of Island Biogeography	
12	Mar 25	Island Biogeography in the Anthropocene	Advances in Island Biogeography Theory	
13	Apr 1	Last minute paper Q&A	Reserve lecture slot	Quiz 4
14	Apr 8	No Class		Paper Due

HOW SHOULD I MANAGE MY TIME?

Throughout the course, you will need to balance your time between lectures, independent reading (especially the critical readings), as well as planning your presentation and final paper. I cannot stress more strongly that you will get much more out of the class if you attend all of the lecture sessions and participate actively in the discussions. Note also that attendance at presentations is mandatory and contributes to your mark. Although the presentation is not until after study week and the paper is due at the end of term, both are substantial undertakings. **Do not leave the presentation or the paper to the last minute.** Start early and take advantage of the opportunity to discuss ideas, topics and potential roadblocks with your peers and with me.

WHAT ELSE DO I NEED TO KNOW?

Diversity, Equity & Inclusion

In this class I want us to:

- Develop an environment of mutual respect and safety in, and out of, the classroom for all participants, regardless of culture, ethnicity, gender identity, national origin, race, sex, sexual orientation, socio-economic status, religion, mental and physical ability, experience, or other aspects of identity or background.
- Foster an environment where the merit of ideas, hypotheses, and data are rigorously evaluated and challenged, but the merit of individuals is never in question.

You are expected to abide by the following principles in class:

- Be respectful in all of your interactions
 - Remember that others have different life experiences, perspectives, backgrounds, strengths, and challenges
 - Challenge ideas, inferences and evidence but not individuals
 - Listen and learn. Contribute to, but do not dominate, discussions.
 - Be willing to change your mind if another argument, dataset, or other evidence is stronger
 - Racist, sexist, or other discriminatory or exclusionary behaviour will not be tolerated. Nor will harassment or bullying of any kind.

Throughout the course we will focus on a scientific approach based on the hypothetico-deductive method. This is just one way of knowing.

- There are other ways of knowing and learning about the world. Our focus on scientific method has no bearing on the value of other forms of knowing.

Science and biogeography have a history of discrimination and colonialism that still exists.

We will bear this in mind throughout the course, especially as:

- The theory and empirical work that forms the basis of the course has been done overwhelmingly by white males of European descent. This has, undoubtedly, weakened and slowed the accumulation of knowledge in the discipline.
- Some of these researchers had racist, sexist and other discriminatory views. And some of this research was used to strengthen and perpetuate colonialism and discriminatory world views. Discussion of these ideas, and researchers, is not meant – in any way – to indicate an acceptance of these views, or to excuse them.

I am still learning about diversity, equity and inclusion. and trying to improve.

- If I make mistakes, please draw these to my attention and feel free to discuss any concerns that you have with me.

Academic Integrity

I have no tolerance for academic dishonesty and breaches of Academic Integrity. To me, it is theft. Theft of the hard work, the ideas, and achievements of others. And if you obtain your degree through dishonesty you are stealing future jobs, academic positions and/or other opportunities from others who have earned them.

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.

Copyright Compliance

By taking the course you sign up to the following statement:

I understand and agree that all instructional, reference, and administrative materials to which I am given access in this course (the "course materials"), whether they consist of text, still or kinetic images, or sound, whether they are in digital or hard copy formats, and in whatever media they are offered, are protected in their entirety by copyright, and that to comply with this copyright and the law.

(a) I may access and download the course materials only for my own personal and non-commercial use for this course; and

(b) I am not permitted to download, copy, store (in any medium), forward or share, transmit, broadcast, show, post or play in public, adapt, or change in any way any text, image, or sound component of the course materials for any other purpose whatsoever except as expressly authorized, and only to the extent authorized, in writing, by the course instructor.

I further understand and agree that, if I infringe the copyright of the course materials in any way, 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.

Recording Lectures and Class Activities

In Biogeography, BIOL3151-WDE, instruction will be recorded, where possible, for confidential access by students registered in the course but who are unable to attend class due to illness or other necessity. To the greatest extent possible only the image and voice of the instructor will be recorded for this purpose but, due to class interaction, the images and voices of students present in the classroom may be incidentally recorded and, thus, be available for access by course students in remote locations. These recordings, however, are strictly confidential and may be used only by the instructor and students registered in the course and only for purposes related to the course. They may otherwise not be used or disclosed. Students in the classroom who are concerned about being recorded in this fashion may request the instructor to exclude them from the recording to the greatest degree possible on the understanding that total exclusion cannot be guaranteed. 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 the Chair of the Department of Biology, Lakehead University, 955 Oliver Rd, Thunder Bay, ON, P7B 5E1, +1 (807) 343-8010 ext 8460.