Ecological Structure in Northern Environments

BIOL/ENST/NORT 3313 - 2020

Instructor: Dr. Douglas Morris

Office: CB4017 Lab: CB3019

Teaching assistant: TBA

GA Office :TBA

Text: there is no text for this course. Students will build their notes and understanding from material presented in lectures and workshops and from assigned readings available through the internet.

Office Hours: Monday & Wednesday: 10:00-11:00 (6 January - 1 April 2020 only) or by appointment
Lectures: Monday & Wednesday 08:30-10:00 Room AT 2020

ELECTRONIC DEVICES. Unless instructed to do so, students in class are not allowed to take photographs, send or receive phone or text messages, to use E-mail or social networks, download files, stream content, or surf the internet. Audio and video recording during lectures and tutorials is strictly prohibited unless permission is granted on an individual basis by the course instructor. All electronic devices other than notepads or laptops used to take notes, and calculators required for assignments and tutorials, must be left out of the room or turned off and located out of sight. No electronic devices other than calculators are allowed during quizzes. Students anticipating or sending urgent messages are expected to remain outside of the classroom.

BEHAVIOUR DURING LECTURES AND TUTORIALS. Students must respect the rights of others by conducting themselves at all times in a professional, polite, unbiased and civil manner.

There may be one or more guest lectures during the course**. GUEST LECTURES ARE AN INTEGRAL COURSE COMPONENT AND STUDENTS WILL BE EXAMINED ACCORDINGLY.**

Introduction:

This course is designed for the advanced undergraduate who wants to apply ecological and evolutionary concepts to understand and conserve the ecological structure of northern environments. Course instruction will include a mixture of lectures, tutorials, workshops, assignments, and quizzes. The lectures will emphasize conceptual, empirical, and experimental approaches to ecology and evolution in northern ecosystems. Tutorials and workshops may include a mixture of seminars, reviews of the current literature, problem solving exercises, and student presentations. Short written or oral quizzes will be administered during lecture periods throughout the course.

Course Outcomes and Assessment:

1. Students will become familiar with ecological and evolutionary principles applicable to northern environments with theory in lecture and cogent examples in their required readings. Evaluation of progress will occur through intermittent in-class quizzes/assignments assessing comprehensive understanding of principles. Quizzes/assignments might include randomly assigned oral queries as well as short-answer and problem-solving exercises.

2. Students will know the sources and content of relevant and recent literature on ecological structure in the north by incorporating required and recommended readings, as well as independently demonstrated scholarship, in assignments, oral presentations, and in each student's term report.

3. Students will question and discuss current concepts in ecology and evolution via student presentations and directed assignments.

4. Students will develop the skills, discipline, and study habits necessary for self-instruction in this and other areas of ecology by choosing and reviewing contemporary research themes on ecological structure in northern ecosystems.

5. Students will attain the theoretical and empirical background necessary to solve ecological and conservation problems in the north by fully incorporating required readings, and the lectures' rigorous theory and concepts, in their choice of topics to review, in their oral presentations, and in each student's final written term report.

6. Students will contribute to research and conservation strategies and priorities in the north by actively participating in workshops, tutorials, and student seminars.

Evaluation:

In-class oral and written quizzes/assignments - 40%; student presentations - 40%; additional assignments, participation and final term report - 20%.

Workshops and tutorials will centre on reviewing course material, discussing key concepts and newsworthy events, research methods, and scientific communication (including student presentations and the final term report). Printed and WORD versions of the final report must be submitted no later than the end of class (09:50) on 01 April 2020. Failure to submit the report on time will result in a report grade of zero.

Performance will be evaluated regularly. The evaluation will be based on the student's grasp of important issues, logical reasoning, non-trivial criticisms of the material, and the ability to solve ecological problems. Students are encouraged to share their ideas and questions.

Written or other reports may be assigned at intervals during the course. Evaluation of the reports will be based on the student's ability to synthesize a field of enquiry, to apply that synthesis to a particular problem, or to develop significant new insights into ecological or evolutionary issues. Reports will not, in general, be review papers. Rather they will require the student to apply what is known (and what's not known) to an unresolved question in ecology. Evaluation will be devoted equally to clarity of presentation, rigour of treatment, and suitability of the report to the assignment.

All students will give two short oral presentations to the class. Themes, format and evaluation will be discussed during a workshop early in the term.

Report Format:

Read each assignment carefully and include only relevant material. Follow the instructions and do not exceed the stated length. All assignments must be double- spaced with 2.5 cm margins. Minimum height of lower-case letters = 2 mm (e.g., Times Roman 12 pt). The duration of oral reports will be stated in class.

Report and Assignment Due Dates:

Assignments will be allocated in lecture to randomly chosen students and will be due **ONE WEEK** after receiving the assignment. Students must be present in order to receive their assignment. Absences will be considered as a missed assignment and receive a grade of zero. Failure to submit an assignment on time will similarly result in a grade of zero for that assignment. ***The due date for the final report is at the end of class (09:50) on 1 April 2020. Reports submitted after the final class on 1 April 2020 (09:50) will not be accepted for grading and will receive a mark of zero.***

Report Style:

Written reports: Be concise. Use the active voice. Organize your thoughts before you begin writing. Omit needless or redundant words. Express your thoughts as clearly as possible even if it means re-writing the report. Write in your own words. Use quotations only when you cannot express the thoughts yourself. Never borrow a phrase without quotations. Never repeat observations, interpretations, or ideas without proper citation. Oral reports: Be concise and stay on time. Use words as you would in a casual conversation, but make every word count. Ensure that you are presenting something new and valuable to our understanding of ecological structure in northern ecosystems. Speak such that everyone can hear you, enunciate clearly, and vary your tone. Concentrate on communicating your ideas and thoughts to the class. Seek eye contact. Think carefully about your message, make every word and phrase work to convey that message, then rehearse your presentation to ensure that it actually does the job.

FINAL TERM REPORT

Each student will be required to submit a two-page TERM REPORT that clearly conveys the message of their class presentation. Design the document as though you are presenting it to a political leader or senior bureaucrat charged with developing northern policies. The first page must be a bulleted report that identifies the issue or problem to be assessed, why that issue or problem is important, and what sorts of actions can resolve it. Page two (printed on the reverse side) will provide a short but highly cogent list of sources that can be used to confirm your statements and yield solutions to the issue or problem you review. Evaluation will be based on the clarity, quality, completeness and integrity of the report.

Please note: The term report is a **term project** and **not** a final examination. Students will be ineligible to write a special examination as outlined in regulation VII in the Lakehead University Calendar.

SOME SUGGESTIONS:

DO start background work on each assignment as soon as you receive it.

DO read required readings (and appropriate related literature) on time so that you are always up-to-date on course material.

DO re-write your essays and reports as many times as necessary to meet the length restriction, to improve your prose, and to make your material as readable, interesting and informative as possible.

DO interact with classmates in order to ensure that you fully understand course material and assignments.

DO read professional scientific essays (eg., the "News and Views" section in the journal "Nature" or perspectives in "Science") in order to appreciate the value of concise, clear writing.

DO NOT leave the term report until the "last minute".

DO NOT stray from the instructions.

DO NOT use web-based material other than to search for and download properly reviewed and edited documents.

DO seek classmates' opinions, but ensure that assignments and reports are completed independently and represent only content and ideas that are yours alone.

Tentative Timetable - 2020

DATES	**TOPIC**
6-13 January	Northern Ecosystems are Dynamic
15 Jan.- 27 Jan.	Latitudinal Gradients in Diversity
29 Jan. - 5 February	Latitudinal Gradients in Body Size
10 Feb.- 26 February	Population Dynamics of Northern Species

17-21 February **FAMILY DAY AND STUDY WEEK - NO CLASSES**

2-11 March Northern Food Webs

16-23 March Conservation and Management

25 March - 1 April Northern Climate Change

1 APRIL ***FINAL REPORT DUE 09:50***

Guest lectures, tutorials, and workshops may be scheduled at irregular intervals.

Lectures: ***08:30-09:50 Monday and Wednesday Room AT 2020***