COURSE SUMMARY

Ecological Structure in Northern Environments

(0-0;3-0)

BIOL/ENST/NORT 3313 - 2016

Instructor:

Dr. Douglas Morris

Office: CB4017 Lab: CB3019

Teaching assistant:

Lindsey Maendel

Office CB3019

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:

Tuesday & Thursday: 11:30-12:30 (5 January - 31 March 2016 only) or by appointment

Lectures: Tuesday & Thursday 08:30-09:50 Room RB-3044

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.

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

Contents:

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, 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 quizzes will be administered during lecture periods intermittently throughout the course.

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Course Objectives:

1. To familiarize students with ecological and evolutionary principles applicable to northern environments.

2. To introduce students to the relevant and recent literature on ecological structure in the north.

3. To inspire students to question and discuss current concepts in ecology and evolution.

4. To assist students in developing the skills, discipline, and study habits necessary for self-instruction in this and other areas of ecology.

5. To help provide students with the theoretical and empirical background necessary to solve ecological and conservation problems in the north.

6. To provide an opportunity to contribute to research and conservation strategies and priorities in the north.

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Evaluation:

In-class workshops and quizzes - 80%; assignments, participation and final term report - 20%.

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 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.

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Report Format:

Read each assignment carefully and include only relevant material. Maximum length of regular reports including tables, figures, and references will be 1000 words (double- spaced, 2.5 cm margins, minimum height of lower-case letters = 2 mm).

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Report Due Date:

All regular reports will be due two weeks after the assignment date. Late submission will be penalized at the rate of 10% per calendar day unless prior permission is received. *The due date for the final report is at the end of class on 31 March 2016. Reports submitted after the final class on 31 March 2016 (09:50) will not be accepted for grading.*

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Report Style:

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.

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FINAL TERM REPORT

Each student will be required to submit a TERM REPORT that provides a perspective on an appropriate scientific study aimed at achieving Canada's High Arctic Research Station's (CHARS) primary mandate to "advance knowledge of the Canadian Arctic in order to improve economic opportunities, environmental stewardship and the quality of life of its residents and all other Canadians" as detailed in the Canadian High Arctic Research Station Act. The perspective will consist of a short essay evaluating how the research will help us better understand the current and future ecological structure of northern environments. The essay must follow the general format used in "News and Views" in the journal "Nature". The perspective should clearly articulate the study, why it is important, and how it fits with other provisions within the act.

The perspective essay will be evaluated with the same criteria that a discerning editor would use for "News and Views" (students should read a variety of recent "News and Views" in order to best understand the style, format, and content that we are looking for). Students must read and follow the appropriate 'Guide to Authors' available on the Nature web site. The evaluation criteria will include your instructor's answers to questions such as:

Is the essay "newsworthy" (are the views expressed in the essay likely to be important and novel with respect to our understanding of the future ecological structure of northern environments)? Does the essay include the author's views on the issue, and are these insightful? Does the essay follow the general format and length for "News and Views"? Is the essay appropriate for a general science reader (e.g., a senior undergraduate science student)? Will the essay also interest specialists in the field? Does the essay capture the reader's interest and imagination? Is the essay factual (i.e., are there any serious errors or omissions)? Is the essay clear, concise, and easy to follow?

Maximum length of the text (including tables, figures, byline, and references) is 1000 words.

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. Students are encouraged to begin work on the term report no later than 14 January 2016.

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FORMAT FOR THE TERM REPORT

The report must be double-spaced on standard letter-size white paper with 2.5 cm margins. Use TimesNewRoman 12 or an equivalent sized font. ***The due date for the report is the end of class on 31 March 2016. Reports submitted after 31 March 2016 will not be accepted for grading.***

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 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 DO NOT work on a joint term report.

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Tentative Timetable - 2016

DATES	TOPIC
5-12 January	Northern Ecosystems are Dynamic
14-26 January	Latitudinal Gradients in Diversity
28 Jan. - 4 Feb.	Latitudinal Gradients in Body Size
9-25 February	Population Dynamics of Northern Species

15-19 February	***FAMILY DAY AND STUDY WEEK - NO CLASSES***
1-10 March	*Northern Food Webs*
15-22 March	*Conservation and Management*
24-31 March	*Northern Climate Change*
31 MARCH	***FINAL REPORT DUE 09:50***

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

Lectures: 08:30-09:50 Tuesday and Thursday Room RB-3044

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