SC/BIOL 2050: Ecology. 4.0 Credits. Fall Term, Session A. EN. 2009-2010.

Objectives:
This course is an introduction to the core principles of ecology. The following objectives will be addressed through readings, lectures, discussions, and labs.

1. To develop critical ecological thinking skills.
2. To explore the ecological principles and concepts used in more advanced topics.
3. To apply these concepts to people.
4. To develop familiarity with hands-on ecological sampling techniques.

Instructor:
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Prerequisites:
SC/BIOL 1010 6.0

Online resources:
www.ecology4humans.org

Office hours:
(i) Available 1030-1130am M & W in LB 218.
(ii) By appointment.

Time & location:
Lectures: MWF at 930a in ACW109.
Labs: M-F at 230-530p in LB118.

Important student information:
Please see the following links for the academic honesty:
http://www.yorku.ca/univsec/policies/document.php?document=69
and general information:
http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm

Specific policy on assignments:
Late assignments will not be accepted without explicit *a priori* permission of the instructor.
All assignments must be double-spaced and typed & submitted via email.

Structure:
Each week a new topic will be developed in the lecture slots. Generally, the first meeting is a lecture, the second a discussion using the textbook, and the third lecture per week a mix of both lecture and discussion (i.e. a tutorial) to ensure that the topic is mastered. During every single meeting in the lecture slots, there will be a quiz using eclickers to reward you for attending. It is open book, laptop, or textbook (so bring your ebook or book with you). I want to encourage you to be present, processing, and working to understand the material. Hence, show up, work hard, and you can earn up to 25% of grades. I also want to reward those that are good at memorizing so there is a mid-term test, and finally, I want to give those that might like to problem solve or be creative a final paper. So, this course it designed for all learning styles including listening, memorizing, writing, solving, and in the labs, doing exercises.

Readings:
Text: Ecology by Cain et al. 2008. There are 3 versions. Paper text, ebook online, and ebook offline like a pdf. So, you can be paper-free (plus the ebook format is much cheaper)! I really want this course to be paper-free so the lab manual is also available on the course website as a pdf.

Evaluation:

In-class quizzes.	25%
Lab reports.	30%
Mid-term test.	20%
Final paper.	25%

Lecture schedule

WK1. Hello.

Sept 11. Introduction and orientation.	Lecture.

WK2. Paradigm.

Sept 14. Critical thinking.	Lecture.
Sept 16. What is data and using excel.	Lecture.
Sept 18. Real ecological research.	Lecture.

WK3. Ecology explained.

Sept 21. What is ecology.	Lecture.
Sept 23. The web of life (CH1).	Discussion.
Sept 25. Experiments.	Tutorial.

WK4. Major biomes of the world.

Sept 28. Biomes.	Lecture.
Sept 30. The biosphere (CH3).	Lecture.
Oct 2. Long-term ecological research.	Tutorial.

WK5. Life-history.

Oct 5. Life-history tour.	Lecture.
Oct 7. Life-history trade-offs (CH7).	Discussion.
Oct 9. Life-history applied.	Tutorial.

WK6. Populations.

Oct 19. Growth & regulation of populations.	Lecture.
Oct 21. Life-tables & growth (CH9).	Discussion.
Oct 23. Ecological footprint.	Tutorial.

WK7. Competition and negative interactions.

Oct 26. Definition & types of competition.	Lecture.
Oct 28. Competitive exclusion everywhere (CH11).	Discussion.
Oct 30. Mid-term exam in class.	Mid-term.

WK8. Facilitation and positive interactions.

Nov 2. Mutualism and commensalisms.	Lecture.
Nov 4. Positive interactions (CH14).	Discussion.
Nov 6. Facilitation in plants – real research.	Lecture.

WK9. The community concept.

Nov 9. Community definitions.	Lecture.
Nov 11. Interactions in communities (CH15).	Discussion.
Nov 13. Invasive species.	Tutorial.

WK10. Succession.

Nov 16. Change and succession.	Lecture.
Nov 18. Mechanisms of succession (CH16).	Discussion.
Nov 20. Human effects on succession.	Tutorial.

WK11. Diversity.

Nov 23. Resource partitioning.	Lecture.
Nov 25. Nonequilibrium theories (CH18).	Lecture.
Nov 27. Consequences of diversity.	Lecture.

WK12. Human Ecology.

Nov 30. What applies to humans?	Lecture.
Dec 2. Legacy drive in humans (Aarssen 2007).	Discussion.
Dec 4. Your final paper.	Tutorial (final class).