Welcome to

Advanced Topics in Biodiversity Science and Conservation Biology (EEB465H1S)

Course Syllabus 2015 1.0

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Course Description:

This new course is called Biodiversity in the Anthropocene. Although I say it is new I have been working on it for years and in 2014 introduced several topics to the strong approval of students who encouraged a full course. Classical Conservation Biology has largely failed and is being replaced by the New Conservation Biology which I introduce in EEB255. As humans we are faced with the challenge of moving into the Anthropocene and leaving behind the Holocene. What biodiversity will we bring with us? What biodiversity do we need ? How do we make decisions ? In this course you will gain a new scientific understanding of biodiversity, what we are losing and what we are gaining, why it matters, and what we can and should do to guide biodiversity's progression into the Anthropocene. We meet each week for a single interactive 3-hour lecture to learn about the world's exciting biodiversity, both existing and emerging, the value of ecosystem services, processes of both extinction and creation, polar bears as a model species, wild and artificial habitat, morality, laws and policies, and the future for life on Earth. This course is novel by departure from Classical Conservation Biology which is found in most textbooks and research articles, and by its opportunity to learn from economics: "the causes of biodiversity loss are grounded in economics….And most importantly, the solutions and their effectiveness are grounded in economics" (Fisher et al 2015, pg 3). In addition to lectures you will be self-studying from a newly released book on economics for conservation biologists, and

reading posted research papers, popular articles, and viewing films. You are evaluated by three in-class written tests and class participation. This is an intellectually demanding course and you should be prepared for a challenge.

Purpose and Objectives:

Earth is primarily a rock in space and the only planet known to have life. Earth's biodiversity has evolved over millions of years into elements distributed as genes, populations, species, communities and ecosystems. Humans are a natural part of this biodiversity, originating and operating under the same evolutionary and ecological rules as other species, and requiring other species for our own survival. We have no other home and we are not "specially created". We breathe the oxygen produced by plants, eat the bodies of plants and animals, and drink the water from the hydrological cycle. But recent human population growth and consumption is transforming Earth into a new geological epoch, the Anthropocene, in which much of Earth's Holocene biodiversity is maladapted and endangered ecologically and genetically. This course will provide you with: ***A. Knowledge and Understanding:*** By the end of this course you should be able to demonstrate a scientific understanding of the value of biodiversity to humans, the biodiversity that we are losing and gaining, the difference between Classical and New Conservation Biology, the scientific principles that produce biodiversity, the political, social and economic forces that impact biodiversity, practical approaches for implementing conservation and enhancement, and career opportunities within conservation biology. You will have gained this knowledge and understanding through active participation in lectures, readings, films and discussion. ***B. Skills:*** By the end of this course you should be able to dissect key issues in biodiversity using critical thinking skills such as analysis and deduction, and comparison and contrast. You will have enhanced your communication skills, both oral and written, through active engagement in lecture discussion and through reading and written testing. ***C. Application***: By the end of this course you should be prepared to engage intellectually in real life biodiversity topics such as those discussed in the daily news, within the university community, by government and non-government agencies, and within society in general. You will have practiced by critiquing topics in class and by tests that require a written product. You will be prepared to continue with your education in ecology, evolution, and biodiversity and conservation biology at higher, graduate levels, or you may find yourself able to apply to new employment opportunities.

Time and Location:

Course lecture time: Thursdays 1-4pm

Location: Sidney Smith (SS) 2105

There are no labs or written projects associated with this course.

Policy on Class Help and Email Usage:

There is plenty of opportunity for help. For questions concerning lectures or readings, please do the following: 1. Ask questions in class. There are opportunities during lectures to receive clarification; 2. Meet with me immediately after class to address your question in person. I will be available most class days; 3. Make friends in class for help in learning. Peer discussion is an excellent way to learn. If you don't have study-friends you are missing out; 4. Email should not be used as a mechanism to receive private tutorials (especially prior to tests) or to explain material that was covered in lectures that you missed. Many questions are already answered on a website, syllabus, or lecture materials (handouts and readings). But illness happens and unexpected events can set you back. Under these legitimate circumstances, don't hesitate to ask your friends in class for help to catch up, or email me for an on-line or office meeting (mart.gross@utoronto.ca). I am available to help you succeed if you are willing to try.

Emailing Prof. Gross:

If you want to reach me by email (mart.gross@utoronto.ca), in the 'subject' line write EEB465 and summarize your question or comment, for example "EEB465: test conflict". In the text area please explain your question clearly.

Course Website:

EEB465 is on Blackboard via the University of Toronto's Portal system.

Readings:

Readings are a significant component of this course and you are responsible for a book as well as posted literature and popular articles. Refer to the Lecture Schedule that will be regularly updated on Blackboard and read the relevant materials **before** coming to class.

1. Required book: Brendan Fisher, Robin Naidoo and Taylor Ricketts. 2015. *A Field Guide to Economics for Conservationists*. Roberts and Company Publishers. Available at

campus bookstore as paperback edition ISBN 978-1-936221-50-9 for $51.75 + tax = $54.35 CN. Unfortunately this small book is not available as an eBook and the rise in the US dollar has driven the price up. You might be able to share copies but if you plan to take additional management or conservation courses or become a professional you should consider your own copy. You will be reading and studying the entire book largely on your own. About 1/3rd of your total reading is from this book (based on pages).

2. Posted literature and articles: literature, popular articles and newsworthy events will be posted on Blackboard (usually readings are posted the weekend before class). About 2/3rds of your total reading is from these postings (based on pages).

Evaluation and Grades:

Three hand-written tests (40%, 25%, 25%) about 90-120 minutes long are held in-class on the dates shown in the Lecture Schedule. Tests usually have fill in the blanks, short answers, and essay answers. You will know what to expect because an example test and marking details will be posted on Blackboard. Your grades will be posted on Blackboard and your test returned. About 1/3rd of your course content is from your readings (book plus posted articles) and 2/3rd from your lectures. Lectures integrate the readings with considerable additional content. An additional 10% of your grade is based on class participation, including attendance but especially your contribution of ideas and answers during classes.

Missed Test:

If you miss a test for medical reasons you provide a University of Toronto's Verification of Student Illness or Injury [or Treatment] report downloadable from: www.illnessverification.utoronto.ca. There will not be a re-test but at my discretion the percentage may be allocated to other tests. Contact me to discuss.

Academic Integrity:

"According to Section B of the University of Toronto's Code of Behaviour on Academic Matters (http://www.utoronto.ca/govcncl/pap/policies/behaveac.html) that all students are expected to know and respect, it is an offence for a student" to cheat. Any student found cheating will be dispelled.

Writing:

Your grade is based primarily on written work in your tests. This includes what you write and how you write it. Therefore everyone is encouraged to improve their writing skills. See www.writing.utoronto.ca and for multilingual students see www.artsci.utoronto.ca/current/advising/ell/reading-writing.

Accessibility:

For help, see www.accessibility.utoronto.ca .

Illness or Absence:

If your studies are impacted by unexpected illness or absence, provide me within 1-week a University of Toronto's Verification of Student Illness or Injury [or Treatment] downloadable from: www.illnessverification.utoronto.ca or a college registrar letter explaining the situation. I will make suggestions on how to catch up. You must also record your absence on ROSI Absence Declaration: http://www.rosi.utoronto.ca/

Audio or Visual Recording:

Not allowed in this course.

Lecture Schedule:

A regularly updated Lecture Schedule will appear on Blackboard as 2015 Lecture Schedule with associated readings and activities.

Instructor and Course Reviews:

Prof. Gross has taught EEB465 for 20 some years and students have consistently rated it highly. He has received teaching awards.

How to Succeed:

Class averages are about B+/A- (similar to other 4th year science courses) but individual students range widely from A+ to F. That a few students fail each year always surprises me but there are many reasons, often personal. Here are some tips for success from high-scoring students and my own observations.

1. Read well: (a) your book is an exercise in self-study, read it most days (don't fall behind); (b) complete your posted readings before class to increase understanding, interest, and interaction in lecture; (c) understand and don't overly memorize (memorize key facts but not all facts); (d) learn to read quickly (like a professional).

2. Write well: take a writing course (e.g, www.writing.utoronto.ca , multilingual students see www.artsci.utoronto.ca/current/advising/ell/reading-writing). Your improvement will surprise you and all courses with written tests/papers as well as future career opportunities will improve.

3. Record well: (a) don't miss lectures. There are 10 lectures so each is worth about 10% of your final grade - you want to know what is going on; (b) make effective use of your electronics, for example to record notes, correct ideas, highlight articles, and keep yourself organized; (c) if you bought your own book, write on it to save your ideas.

4. Engage well: (a) appreciate the learning opportunity of this course (dream about it, think and talk about it, ask questions and give answers in class); (b) use effective time management skills (master time management skills and watch your performance improve everywhere).

5. Feel well: (a) set yourself up for success by being mentally and physically healthy to deal with the stresses of learning; (b) eat well, sleep well, exercise more, drink less.

Good luck and enjoy this course!

2015 Lecture Schedule EEB 465 (subject to revision) 1.0

8 Jan Introduction

15 Jan New Conservation Biology

22 Jan Anthropocene

29 Jan Shaping Biodiversity

5 Feb Polar Bear (Pamela Wong)

12 Feb Ecosystem Services

26 Feb Test 1, 40%

5 Mar Morality in the Anthropocene

12 Mar Zoos (Rob Laidlaw)

19 Mar Test 2, 25%

19 Mar Managing Biodiversity

26 Mar Achieving Goals

3 Ap Test 3, 25%