# Welcome to

## Essentials of Biodiversity Science and Conservation Biology (EEB255H1S)
## Course Syllabus 2015


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**Course Description:**
This flagship course for the Major in Biodiversity and Conservation Biology provides a scientific understanding of biodiversity, what we are losing and what we are gaining, why it matters, and what we can 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 extinction and creation, polar bears, threats and opportunities, population biology and genetics, wild and artificial habitat, animal welfare, laws and policies, and the future for life on Earth. This course is novel by including both Classical and New Conservation Biology, which reflects an alternative approach I am developing for understanding biodiversity and conservation. In addition to lectures you are assigned extensive readings from a popular textbook, research articles, and films. You are evaluated by four equally-weighted written tests. 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 phenomenon is known as the 'biodiversity crisis". It threatens the existence of humans and lacks an obvious solution.

The goal of those working in the disciplines of biodiversity and conservation is to provide the scientific knowledge for humans to avert the biodiversity crisis, managing ourselves and other life forms so that biodiversity including humans and our quality of life continue to exist on Earth. Our discipline is still at an early stage but is rapidly growing in research, knowledge and application. It is a popular topic of undergraduate study in universities around the world.

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 Earth's biodiversity, the value of biodiversity to humans, the biodiversity that we are losing and gaining, the possibilities for ending the biodiversity crisis, and the difference between Classical and New Conservation Biology. You will be conversant in 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 by entering the many advanced courses at the 3rd and 4th year levels (e.g., EEB365 (Topics in Applied Conservation Biology), EEB465 (Advanced Topics in Biodiversity Science and Conservation Biology), EEB498 (Independent Research Project), EEB466 (Museum Approaches to the Study of Biodiversity)). You may find yourself able to apply to new employment opportunities.

**Time and Location:**
Course lecture time: Wednesdays 1-4pm
Location: University College 161
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 Prof. Gross immediately after class to address your question in person. He 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, in lecture materials (handouts and readings) or in your textbook. 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 Prof. Gross for an on-line or office meeting (mart.gross@utoronto.ca). Prof. Gross is available to help you succeed if you are willing to try.

**Emailing Prof. Gross**:
If you want to reach Prof. Gross by email (mart.gross@utoronto.ca), in the 'subject' line write EEB255 and summarize your question or comment, for example "EEB255: test conflict". In the text area please explain your question clearly.

**Course Website:**
EEB255 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 textbook as well as web-site-posted literature and popular articles. Refer to the Lecture Schedule on Blackboard to be up to date and read the relevant materials **before** coming to class (in some cases articles may be posted after class).

1. Required textbook: Richard Primack (2014). *Essentials of Conservation Biology, Sixth Edition*. Sinauer Associates Publishers. Available at campus bookstore as paper edition ISBN 978-1-60535-289-3 for $115.50 + tax = $121.30 CN. Available at www.coursesmart.com as eBook ISBN 978-1-60535-329-6 for 180day/6month subscription for $42.73+tax US and unlimited for $80.71+tax US.

   This is an award-winning, widely popular, up-to-date, comprehensive, and easy to read textbook, the best in Classical Conservation Biology. About 75% of your reading is from this textbook (based on pages).

   If you plan to take additional ecology, evolution or conservation courses you might consider the paper or unlimited eBook as a reference for upper-year courses. The book is also used by professional conservation biologists. You will be reading the entire textbook so the cost is low per page. The previous 5th edition is four years out of date and I don't recommend it. Don't cut corners here. You can check with your local library to see if they have a copy.

2. Posted literature and articles: scientific literature will be posted on Blackboard for the New Conservation Biology. Popular articles and newsworthy events will also be posted. About 25% of your total reading is from these postings (based on pages).

**Evaluation and Grades:**
Four hand-written tests (25% each) about 60-90 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 50% of your course content is from your readings (textbook plus posted articles) and 50% from your lectures. Lectures integrate the readings with additional content and are necessary to understand the New Conservation Science.

**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:**
See Blackboard document "2015 Lecture Schedule"

**Instructor and Course Reviews:**
Prof. Gross has taught this course for many years and students have consistently rated it highly. He has received teaching awards.

**How to Succeed:**
Class averages are about B (similar to other 2nd 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) love your textbook and read it every day (don't fall behind); (b) complete readings before class, including textbook and posted articles, 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 11 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, and highlight and comment in your eBook.
4. Engage well: (a) appreciate the learning opportunity (dream, think and talk about it, in class ask questions and give answers); (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!**