Biological Consequences of Global Change
Syllabus: BIOC58H3 Fall 2016

Course Instructors:	Dr. Rachel Sturge, rachel.sturge@utoronto.ca, SW 563B Office hours: Monday 11am - 1pm or by appointment TA: Sara Campbell	
Textbook:	No required textbook. Students will be reading scientific papers and discussing them in tutorial.	
Class meeting time:	Lectures	Mondays 9 – 11am MW 170
	Tutorials	Tuesdays 9 – 11am IC 220

1) Course Description

This class is a lecture and tutorial course that addresses the key environmental factor that will dominate the 21st century and life on the planet: Global Climate Change. The course will examine the factors that influence climate, from the formation of the earth to the present time, how human activities are driving current and future change, and how organisms, populations, and ecosystems are and will respond to this change. Finally, it will cover human responses and policies that can permit an adaptive response to this change.

2) Learning Outcomes

At the end of this course, students should be able to…

1. Correctly use common biological terms and principles from the study of global climate change.
2. Describe the major factors contributing to both past climates and today's climate.
3. Compare and contrast natural and anthropogenic factors contributing to global climate change, and describe the impact of these changes on various biological systems.
4. Recognize that the climate has changed in the past, and be able to describe how biological systems have responded to those changes. Be able to use this information to predict future trends.
5. Read and interpret scientific literature from the field, and use that literature to synthesize persuasive arguments in both debates and in written form.
6. Explain how studies in the field can help us understand the impacts of climate change and how organisms have responded / continue to respond to these changes.
7. Apply the knowledge used in this course for both understanding and to inform policy in an effort to mitigate the impacts of climate change, both in this course and in your future lives.

3) Academic Honesty

All work in this course is covered by the University of Toronto's policies on Academic Misconduct (see below hyperlink), which outlines the behaviours that constitute academic dishonest, as well as the processes for addressing academic offences. The University treats cases of cheating and plagiarism very seriously, so please **REVIEW THIS MATERIAL** as you are expected to be familiar with it.

http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf

Note that academic dishonest includes (but is not limited to) failure to properly acknowledge other people's words, information or ideas (including information in textbooks), making up sources or facts, citing non-accredited sources (such as Wikepedia) as if they were peer-reviewed, submitting you own work in more than one course without the permission of both instructors, obtaining or providing unauthorized assistance on any assignment or test (including the use of unauthorized aids or looking at the answers of another student), misrepresenting your identify or falsifying / altering any documents required by the university (for example, a doctor's note.)

All students should have confidence in their ability to master this course material and earn an acceptable grade. If you are struggling with the material, please come see me or speak with the Teaching Assistant. You should also consider forming study groups as research has shown that students who participate in study groups earn, on average, higher grades in courses than those who do not.

4) Course Policies

- Come to class on time and be ready to start as soon as class begins.
- Read all material related to that day's lecture / tutorial BEFORE class, and complete any pre-class assignments in advance.
- Ask questions and discuss the material with other students. Group discussion promotes learning.
- Be an active learner and participate fully in all aspects of the course. Hold yourself and your teammates accountable for all tasks assigned to you / them in any group activity. Be honest with yourself if you are not contributing as fully as you should be, and make positive changes, if necessary.
- If using technology, which includes (but is not limited to) cellphones, tablets and computers, please use them responsible. The human mind is NOT capable of multitasking (as many scientific studies have shown), and distracted learners are not high-achieving learners. I reserve the right to dock points from any students caught using electronic devices for non-class activities, and also to ban them from future use of these devices while in class.

5) Assessment

a) Methods of instruction

The basic information of this course will be presented through lectures on major topics, student-led literature reviews of recent articles, and group-based active learning exercises. Class attendance (both lecture and tutorial) is **mandatory** and prompt arrival is crucial.

b) Tutorials

We will spend time in tutorial analyzing and discussing scientific papers on topics that relate to each week's lecture. Before **lecture**, students are expected to read the assigned paper and complete, on their own, a pre-lecture reading quiz through Blackboard. In tutorial, students will work in groups of four to answer questions related to that week's article. Groups will then be randomly assigned questions and asked to present their findings to the class as a whole. Through these discussions, you will learn how to read scientific literature critically, and how to identify both the limits of a study and the general principles that we can draw from it. Reading scientific literature requires understanding the basics of methodology, putting effort into thinking about the research and the results, and critical thinking skills. In addition, these readings will supplement the lecture material, and the material from these papers will be covered on tests / exams.

In addition to literature discussions, students will participate in active learning and group-based exercises aimed at promoting deeper thinking about the concepts introduced in this course. These exercises may include, but are not limited to, writing assignments, debates, and group presentations. Some of these activities will require that you read additional material or conduct research outside of the classroom. More details regarding these assignments will be given out as the semester progresses.

No makeup tutorials will be permitted. All students will be allowed to drop their lowest tutorial score, regardless of the reasons for the missed tutorial. Note this dropped score also includes all university-accepted excused absences (such as illness.) If you will miss more than one tutorial for a university-accepted reason, you must contact your TA or myself as soon as possible so we can discuss alternate accommodations.

c) Term Tests and Final Exam

There will be two term tests worth 15% each, and one cumulative final exam worth 40% of your final grade. All tests / exams will be based on lecture material and on the literature discussed during tutorials. Readings supplement the lecture material and are immeasurably helpful in preparing for tests / exams. All tests will consist of multiple choice, short answer and problem-solving questions.

The final exam (worth 40% of your final grade) will take place during the final exam period. It will be cumulative, and will have a similar format to the term tests, but may include a few essay questions as well. You will be given advanced notice on the format of this final exam.

No makeup tests will be permitted. If you missed a term test due to a university-accepted reason, please contact me within three days of the missed test and provide me with documentation to support your absence. Students with a valid excuse will have the relevant portion of the final exam count as their grade for the missed term test.

d) Accessibility

We welcome students with diverse learning styles and needs at this University and in this course. If you require some sort of accommodation, please see me or contact the AccessAbility Services Office (see below links) as soon as possible. We will work with you to ensure that you are able to meet the course learning objectives successfully. The UTSC AccessAbility Service staff are available by appointment to assess your specific needs, provide referrals, and to arrange appropriate accommodations. All enquiries are confidential.

UTSC AccessAbility: ability@utsc.utoronto.ca, (416) 287-7560, SW 302

e) Grading policies

Students are responsible for all material that is presented in lecture and tutorial. If you miss a class, you are strongly advised to obtain the notes and assignments from another student. Participation in lecture and tutorial will be an important factor in determining borderline grades, so attendance and participation are strongly advised. Please note again that **NO MAKEUP TUTORIALS OR TERM TESTS ARE PERMITTED.** For more details, please refer to the relevant sections of this syllabus.

Category	Percent
Term tests (2, worth 15% each)	30%
In class exercises	10%
Tutorials	20%
Final Exam (cumulative, during final exam period)	40%

Schedule of Classes

Instructor: Dr. Rachel Sturge (rachel.sturge@utoronto.ca)

Lecture: Monday 9-11am MW 170, Tutorial: Tuesday 9-11am IC 220

Week	Date	Topic
1	Sep. 1	Introduction (note this is a **THURSDAY** class)
2	Sep. 5 & 6	No lecture (labour day) and **no tutorial**
3	Sep. 12 & 13	Evolution of the Earth's climate **Tutorials start this week**
4	Sep. 19 & 20	The impacts of human induced climate change - Part 1
5	Sep. 26 & 27	The impacts of human induced climate change - Part 2
6	Oct. 3 & 4	Past terrestrial responses to climate change **TERM TEST 1 - in tutorial**
7	Oct. 10 & 11	**READING WEEK - NO CLASS**
8	Oct. 17 & 18	Past aquatic responses to climate change
9	Oct. 24 & 25	Mass extinctions and the Anthropocene
10	Oct. 31 & Nov. 1	Modeling species and ecosystem response to change
11	Nov. 7 & 8	Estimating extinction risk from climate change
12	Nov. 14 & 15	Ecosystem services and their importance **TERM TEST 2 - in tutorial**
13	Nov. 21 & 22	Conservation biology and climate change
14	Nov. 28 & 29	Policy and actions to find solutions
	Final Exam	**TBA**