– COURSE OUTLINE –
DEPARTMENT OF ENVIRONMENT AND GEOGRAPHY

GEOG 4390/7010 Global Climate Change (Winter 2016)
(3-Credit Hours)

Instructor:

Name: Prof. Ronald Stewart
Office: 470 Wallace.
Phone: 480-1052
Email: ronald.stewart@umanitoba.ca
Lectures: Tues, Thurs at 1:00 - 2:15 pm in 243 Wallace
Office Hours: After class or by appointment

References:

There is no required textbook. There are a number of references that will be used. Two of these will be the following but current literature will also be used. These are available on-line.

IPCC 2007 Working Group I Report (Physical Science Basis).
IPCC 2014 Working Group I Report (Physical Science Basis)

Course Description and Objectives

This course is concerned with the basics of climate and its change, particularly through anthropogenic factors. It will cover the physical factors associated with climate and will examine individual components including forcing mechanisms and feedbacks. It will examine anthropogenic factors and whether these do or do not significantly affect the climate system. It will also consider how climate projections are made, what is currently anticipated, and what are some of the key scientific uncertainties. As well, it will explore suggestions for countering global warming through geo-engineering. Reference to current literature will be made as appropriate. Familiarity with basic mathematical/physical concepts is assumed.

Term Work and Allocation of Marks

The allocation of marks for GEOG 4390 is as follows:

- Quiz = 10%
- Two reports-presentations = 35% (2-3 articles with write-up/powerpoint)
- Mid-term test = 20%
- Final exam = 30% (2 hours in the examination period)
- Group assignment = 5%

The allocation of marks for GEOG 7010 is as follows:

- Quiz = 5%
- Two reports-presentations = 50% (6-8 articles with write-up/powerpoint)
- Mid-term test = 15%
- Final exam = 25% (2 hours in the examination period)
- Group assignment = 5%

Students will produce written reports requiring the examination and synthesis of several articles on topics to be decided in consultation with the instructor. Presentations will also be made by the students on the basis of these reports.

The due dates and details of the reports-presentations and the dates of the quiz and mid-term test will be provided in class. It will be important to attend the lectures and interact with the lecturer and other students. Students will not be permitted to write make-up tests or hand in late assignments except for documented medical or compassionate reasons. Late reports-presentations will be penalized 25% per day (including weekends and holidays).

The final date for voluntary withdraw from this course is March 18, 2016. Students may have access to their marks prior to this date and are encouraged to talk with the instructor before a decision to withdraw is made.

Course Outline

The course will follow a logical sequence of topics. This is similar to that followed by IPCC.

Module	Topic
1	**Introduction**
2	**Basics of Climate**
3	**Climate Forcing Focusing on Anthropogenic Factors**
4	**Climate Modelling**
5	**Climate Projections and Uncertainties**
6	**Geo-Engineering**

Grading Standard

The Departmental grading standard is:

A+	90% and over	C+	65-69%
A	80-89%	C	60-64%
B+	75-79%	D	50-59%
B	70-74%	F	< 50%

Academic Dishonesty

Students should acquaint themselves with the University's policy on cheating and examination impersonation (see Section 7.0 of the University of Manitoba General Calendar). Plagiarism and cheating are serious academic offences.

The University of Manitoba has a new policy on electronic contact with students that requires all email contact on university business to use students' official University email addresses. The policy is at: http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html