

## **EESD06H3: Climate Change Impact Assessment Winter 2017**

### **Instructor Information:**

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Office hours: Tuesdays, 11:00 am to 12:00 pm (January 19 to March 29)

Appointments can be made by email on any day except Friday

### **Tutorials:**

Between 3 to 4 pm at BV469/BV471 (one of these rooms will be used for tutorials and will be announced in advance through blackboard)

*Tutorials start January 17*

Course Webpage is on the Blackboard:

- Lecture Materials
- Announcements

### **Course Description:**

Climate change over the last 150 years is reviewed by examining the climate record using both direct measurements and proxy data. The climate change impact assessment formalism is introduced and applied to several examples. Students will learn how to use ensemble tool to forecast the future climate using Global Climate Models (GCMs). Projection of future climate is reviewed using the results from sophisticated climate modeling. Students will also acquire practical experience in climate change impact assessment through the forecasting of future using case studies.

### **Skills:**

You have to have skill in the general use of computers and spreadsheet use. You need this to assemble and transfer various data files. Basic mathematical skills are required: statistical tests, simple arithmetic, algebraic notation, order of operations, to note a few. You will learn the practical skill of analyzing climate data and its application to Climate Change Impact Assessments through the use of Global Climate Models. You will also develop problem solving and critical thinking skill of using Climate Change information to CCIA.

### **Attitudes:**

First, *active participation* in reading, asking questions and exploring topic material. Secondly, the *independence* to develop your own writing style, and present your own original work. Thirdly, an air of *skeptical assessment* such that if good results are obtained, you say so, but you also show an awareness of the limitations.

### **Schedule- Lecture Topics (tentative):**

- Week 1 – Introduction to Climate Science and CCIA
- Week 2 – Climate Modelling and CCIA formalism
- Week 3– Climate change impact assessment AR4 vs. AR5
- Week 4 – Climate Change Scenarios
- Week 5 – Downscaling Techniques
- Week 6 –CCIA formalism
- Week 7- More on CCIA formalism
- Week 8- Reading week
- Week 9–IPCC (Linking AR5 and the IPCC Science)
- March 7 — Midterm (tentative)- must not miss the test as there is usually no makeup
- March 14– Debates
- Mar 21 – Debates
- March 28 – Debates

### **Grading Scheme:**

Assignments (3)	30%
Participation	10% (attendance +participation in class and in debate)
Midterm	30%
Debate	30%

Midterm (2 hours) will occur in class on March 7 which is tentative due to room availability.

**Detail of the debates will be discussed in class.**

### **Text Book:**

Although no text book has been assigned to this course, the following readings are recommended, which will be helpful to understand the course materials.

Copy right: The materials used in this course are copyrighted. These materials include but are not limited to syllabi, exams, lab problems, in-class lecture materials, and assignments. Because these materials are copy righted, you do not have the right to copy or share any content with anyone except the students in the course without the permission

of the instructor. In addition the password for the climate modelling website shared with the students should be distributed to any individual or institute without the permission on the Instructor.

### **Suggested Readings**

Global Warming, The Hard Science (2000) by L.D.D. Harvey

Climate Change 2013, 2007, The Physical Science Basis (IPCC Report, Fifth and Fourth Assessment)

Climate Change 2013, Impacts, Adaptations and Vulnerability (IPCC Report)

All lectures with supplementary (explanatory) material will be posted on the course Blackboard site.

### **Missed Work:**

- A penalty of 10% per day for any late assignment
- Be wary of the fine line between working together and plagiarizing
- Medical documentation is needed if you require an extension due to sickness

### **Accessibility Needs**

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact The

UTSC Accessibility Services as soon as possible: <http://www.utsc.utoronto.ca/~ability/>

We also suggest you also refer to the following University of Toronto Scarborough Library link:

<http://utsc.library.utoronto.ca/services-persons-disabilities>

### **Plagiarism**

University of Toronto code of Behavior on Academic Matters states that "it shall be an offense for a student knowingly: to represent as one's own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e., to commit plagiarism."

For accepted methods of standard documentation formats, including electronic citation of internet sources please see the UofT writing website at: <http://www.writing.utoronto.ca/advice/using-sources/documentation>

The full Code of Behavior regulations could be found from consulting

<http://www.sgs.utoronto.ca/facultyandstaff/Pages/Academic-Integrity.aspx>

### **WRITING AND ENGLISH LANGUAGE**

As well as the faculty writing support, please see English Language and writing support at University of Toronto: <http://www.sgs.utoronto.ca/currentstudents/Pages/English-Language-and-Writing-Support.aspx>

Students have commented that they found the latter address extremely helpful for writing term papers.