# Metr 4803/5803 Section 001 Global Climate Change - Understanding the IPCC Process and Findings

**Meets:** TR 1:00 – 2:15 NWC 5820
**Professor:** Prof. Michael Richman
**Office:** NWC 5646, Office Hours: TR 2:15 – 3:15 and by appointment. Also, feel free to Email.
**Contact:** mrichman@ou.edu
**Prerequisite:** ***One*** of the following: A course in Intro Meteorology, Intro Earth System Science, Intro Physical Geography, Intro Geology or permission of the instructor. Contact instructor for electronic permission.

**Description:** Have you ever asked yourself one of the following questions? What factors determine the earth's climate? How do human activities contribute to climate change and how do they compare to natural influences? How are the temperatures and precipitation on earth changing? Has there been a change in extreme events like heat waves, droughts, floods and hurricanes? Is the current climate change unusual compared to earlier changes in the earth's history?

The Intergovernmental Panel on Climate Change (IPCC) assesses the scientific, technical and socio-economic information relevant for the understanding of the risk of human-induced climate change. The World Meteorological Organization and the United Nations Environment Programme established it. Since 1990, the IPCC has released five major sets of reports. The main activity of the IPCC is to provide at regular intervals Assessment Reports of the state of knowledge on climate change. The latest one is "Climate Change 2013", the IPCC Fifth Assessment Report. The report will serve as the guide for this class. The class will involve short lectures, student-led presentations, followed by roundtable discussions of the reading assignments on the topics listed under the syllabus.

**Books:**
1. The IPCC Reports -- Available ***free*** online in the class D2L site.
2. Archer, David, 2011: Global Warming: Understanding the Forecast. ISBN-10: 0470943416, ISBN-13: 978-0470943410 (optional)

**Course Work:** There are no tests in this class, including no final exam. The emphasis will be on understanding material and synthesizing it in class presentations. Employers are interested in employees with excellent communications skills and this class should help you improve those skills to communicate scientific findings. Students should read each weekly IPCC chapter and decide on a topic germane for their presentation, consistent with that chapter. *The presentation should not be a summary of the chapter* but, rather, some research relevant to the chapter of the week.

Each group will present a 20 minute PowerPoint type overview of their study to the class each week. Five minutes of Q&A will follow. The group spokesperson will rotate, so that each student can be spokesperson several times. Students will work in groups and prepare short overviews of their readings to present to the class. You must relate your presentation to the specific IPCC Chapter. Be specific in doing so. All presentations must be uploaded to D2L before class starts. **All students are expected to ask questions of the group doing their presentations**. Active participation is required. Bring energy to this class!

**Grades:**
**Undergraduates:** Your grade will be dependent upon (1) the quality of your presentation (guidelines will be supplied) and (2) how well the group fields questions from the class and instructor. You will receive written feedback from the professor after each presentation.

**Graduate students:** In addition to the weekly presentations and feedback, graduate students will be expected to research and write a term paper on a topic agreed upon by the student and professor. Graduate students will present their research the last week of class. The paper is worth 25% of the total grade and must be related to some Chapter in IPCC AR5. Since AR5 is broad, that leaves much latitude to select a topic of interest. See the instructor verify that the topic is appropriate. Write up 5-8 pages on this topic, including literature review, in a professional journal format. See me if you need further guidance.

***All students are expected to attend all classes (including the last week) and ask questions.***

| Week of | Topic Name and IPCC Section(s) |
|---|---|
| **1/14, 1/16** | **Introduction Chapter & Summary for Policy Makers: Chapter 01, SPM brochure, errata** |
| **1/21, 1/23** | **Observations: Atmosphere and Surface: Chapter 02** |
| **1/28, 1/30** | **Observations: Oceans: Chapter 03** |
| **2/04, 2/06** | **Observations: Cryosphere: Chapter 04** |
| **2/11, 2/13** | **Information from Paleoclimate Archives: Chapter 05** |
| **2/18, 2/20** | **Carbon and Other Geochemical Cycles: Chapter 06** |
| **2/25, 2/27** | **Clouds and Aerosols: Chapter 07** |
| **3/04, 3/06** | **Anthropogenic and Natural Radiative Forcing: Chapter 08** |
| **3/11, 3/13** | **Evaluation of Climate Models: Chapter 09** |
| **3/16, 3/18** | **SPRING BREAK - NO CLASS** |
| **3/25, 3/27** | **Detection and Attribution of Climate Change: from Global to Regional: Chapter 10** |
| **4/01, 4/03** | **Near-Term Climate Change: Projections and Predictability: Chapter 11** |
| **4/08, 4/10** | **Long-Term Climate Change: Projections, Commitments and Irreversibility: Chapter 12** |
| **4/15, 4/17** | **Sea Level Change: Chapter 13** |
| **4/22, 4/24** | **Climate Phenomena and their Relevance for Future Regional Climate Change: Chapter 14** |
| **4/29, 5/01** | **Graduate Student Presentations of their Research Topics** |
| **On 5/07** | **Graduate Student Papers due. Wednesday evening by 11:59 PM, upload to D2L** |

**OU Rules and Statements**

**Reasonable Accommodation Policy:** "The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405/325-3852 or fax only 405/325-4173." **See** http://www.ou.edu/drc/home/students/policies.html **for more details.**

**Academic Misconduct Policy:** "All students are expected to be familiar with and abide by the OU Academic Misconduct Code. Each student should acquaint him or her self with the University's codes, policies, and procedures involving academic misconduct, grievances, sexual and ethnic harassment, and discrimination based on physical handicap." **See http://integrity.ou.edu/ for the OU integrity site and** http://integrity.ou.edu/students_guide.html **for the entire OU Academic Code.**