

Metr 4543/5543 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.

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Description: 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 was released in 2013/2014 and will serve as the guide for this class. The class will read each chapter in the IPCC Working Group I, chapter overview lectures by the professor, student-led presentations, followed by roundtable discussions of the reading assignments on the topics listed under the syllabus.

Book: The IPCC AR5 Working Group I: The Physical Science Basis -- Available free online (to avoid creating more carbon pollution) in the class Canvas site.

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, a summary of some research paper(s) relevant to the chapter of the week. The newer the research, the better (i.e., 2014-2017) as it supplements the material presented in AR5. Nearly all scientific publications can be downloaded free from the OU Libraries.

Students will be divided into groups. Each week, every group will find a topic of interest, related to the specific “chapter of the week” in the IPCC, research it and present a PowerPoint overview of their study to the class. Each person in the group must present some portion of the presentation. The presentation should take approximately 12 minutes. Because of the short time for each presentation, it is suggested that the number of slides in the PowerPoint, excluding the cover slide, not exceed 10. The title of the talk, the chapter number, the date and the students’ names in your group should appear on the PowerPoint cover slide (not counted as one of the 10 slides). Upload the PowerPoint presentation to the appropriate Canvas assignment location before class (<12:45 PM cutoff). Three minutes of Q&A will follow each presentation. It is the responsibility of each student to make it clear how the topic relates to the weekly IPCC Chapter. Be specific in doing so. All students are expected to ask at least one question during the class. Active participation is required - bring your energy to this class! Turn your cell phones to silent during class. Students found being distracted by technology (e.g., texting, browsing weather maps, Email, checking Facebook, Snapchat, etc.) during the presentations will be penalized.

Additionally, there will be open electronic discussions every week on Canvas that every student must participate in. You get credit for participating by (a) posting something substantive and (b) responding to at least one other person’s discussion post with some additional information. The discussions are graded either 0 (you failed to participate), 5 points if you completed only 1 of the 2 required posts, or 10 points for completing 2 or more discussion entries for a given week.

Grades:

Undergraduates: Your grade will be dependent upon (1) the quality of your presentation (guidelines are supplied on Canvas), (2) how well the student fields questions from the class and instructor and (3) participating in the weekly discussions. On (1), you will receive written feedback from the professor after each presentation. In the final week, you can present any topic related to global change.

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 this 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. Upload to Canvas. See me if you want further guidance.

Week of Topic Name and IPCC Section(s)

1/17, 1/19	Introduction Chapter & Summary for Policy Makers: Chapter 01, SPM brochure, errata
1/23, 1/26	Observations: Atmosphere and Surface: Chapter 02
1/31, 2/02	Observations: Oceans: Chapter 03
2/07, 2/09	Observations: Cryosphere: Chapter 04
2/14, 2/16	Information from Paleoclimate Archives: Chapter 05
2/21, 2/23	Carbon and Other Geochemical Cycles: Chapter 06
2/28, 3/02	Clouds and Aerosols: Chapter 07
3/07, 3/09	Anthropogenic and Natural Radiative Forcing: Chapter 08
3/14, 3/16	SPRING BREAK
3/21, 3/23	Evaluation of Climate Models: Chapter 09
3/28, 3/30	Detection and Attribution of Climate Change: from Global to Regional: Chapter 10
4/04, 4/06	Near-Term Climate Change: Projections and Predictability: Chapter 11
4/11, 4/13	Long-Term Climate Change: Projections, Commitments and Irreversibility: Chapter 12
4/18, 4/20	Sea Level Change: Chapter 13
4/25, 4/27	Climate Phenomena and their Relevance for Future Regional Climate Change: Chapter 14
5/02, 5/04	Student Presentations of their Selected Topics
On 05/11	Graduate Student Papers due. Thursday evening by 11:59 PM, upload to Canvas

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://ou.edu/content/drc/students/policies.html> - Reasonable Accommodation Policy 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://www.ou.edu/studentconduct.html> for the entire OU Student Conduct Code.

Your weekly IPCC presentation should include the following slides

- Title page with your name
- How the presentation relates to the specific IPCC chapter
- What is the research question the author(s) of the article(s) you summarize and why are those relevant to society?
- Data and/or models - short description and source
- What methods the author(s) used
- Some graphics describing the results
- Brief conclusions
- The reference(s) that you have summarized

Some of these bullets can be combined on a single slide and others may require individual or multiple slides.

Upload your presentation to the class Canvas dropbox at least 15 minutes before class. If you load more than one version, name the later versions, so I know which one to access.

In case the network goes down, bring your presentation on a thumb/key drive.

If you create your presentation using any software other than .pdf or .ppt, convert it to either a .pdf or .ppt before uploading it to Canvas.

Each person in the group must present at least two slides (title not included).

Presentation length is no more than 12 minutes. You will be graded on: (a) the quality of your presentation, (b) your timing – less than 1 minute too short or too long – no penalty; 1 minute but less than 2 minutes too short or too long – minor penalty; 2 or more minutes too short or too long – larger penalty) and (c) your ability to answer questions about the material, the techniques used and how the study or studies relate(s) to the appropriate IPCC chapter. This means you should understand the context of the paper(s) you summarize and some details about the analysis tools.

Practice your presentation before class to insure the timing is good. **I will instruct the class to hold questions until the end of the presentation to make the timing fair.**

Question and answers: 3 minutes. Everyone in the class is expected to ask a question about a minimum of one paper. The presenter's ability to answer reasonable questions will be graded. Questions will come from other groups and from the professor.

Timing: 15 minutes x 4 groups = 60 minutes plus a few minutes to download presentations, load slides ~ 70 minutes today class time. The class allows for 75 minutes, so this will work if groups adhere to the time allotted. In case there is an Internet outage, bring a backup of your presentation on a thumb/key (USB) drive.

Here is the scoring rubric I will use and you will receive within a few days of your presentation. Use it to improve your presentations for the following weeks. You can maximize your score by creating a presentation that shows best practice in all categories.

Scoring Rubric for Oral Presentations

Category	Scoring Criteria	Total Points	Score
Organization (15 points)	The presentation is appropriate for the topic and cites at least 1 reference	10	
	Information is presented in a logical sequence	5	
Content (40 points)	Introduction is engaging, lays out the problem well, and establishes a framework for the rest of the presentation	10	
	Technical terms are well-defined	10	
	Material included is relevant to the overall message/purpose. Graphics and fonts relevant and viewable	10	
	Appropriate amount of material is prepared, and points made reflect well their relative importance	5	
	There is an obvious conclusion summarizing the presentation	5	
Presentation & Questions (30 points)	Speaker maintains good eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.)	10	
	Speaker uses a clear, audible voice and good language skills	10	
	Speaker can field background questions about the presentation and techniques	10	
Time (15 points)	Length of presentation is within the time limits	15	
Score	Total Points	100	
Comments from class and/or professor			