

## WEEKLY SCHEDULE\* (version 8/22)

### Class Topics, Required Readings, and Exercises

\*Note: These topics and readings are *subject to change*! Students will be advised of updates to the schedule on Carmen, and should follow the version with most current date.

Wk	Topic	Lecture	Date	Event/Exercise	Reading
1	Course introduction	1. Introduction & "Global Warming 101"	T 8/23		Do questionnaire: <a href="https://docs.google.com/forms/d/1lQKRLaOT7XVU0JwQlJ-ppQ9JikwLbUkJwiC-OhLNmeg/viewform">https://docs.google.com/forms/d/1lQKRLaOT7XVU0JwQlJ-ppQ9JikwLbUkJwiC-OhLNmeg/viewform</a>
		2. What is climate & weather variability?	R 8/25		Dessler 1-2
2	Solar radiation & Earth's energy balance	3. Is the global climate changing?	T 8/30	<b>Climate Questionnaire (due 9/1)</b>	Dessler 2, 3 Mathez 7 "Century of warming...consequences"
		4. Sun & Atmosphere Energy Basics	R 9/1		
3	Natural climate system and forcings	5. Global greenhouse effect (GHE)	T 9/6		Dessler 3, 4 Mathez 2
		6. Simplifying and modeling climate	R 9/8		
4	Carbon cycle & Anthropogenic Global Warming (AGW)	7. A simple model of the atmosphere, GHE	T 9/13	<b>Exercise 1 (Due 9/15)</b>	Tues: Dessler 4 Thurs: Mathez 4 Dessler 5; Weart, <a href="http://www.aip.org/history/climate/co2.htm">http://www.aip.org/history/climate/co2.htm</a>
		8. How carbon influences climate; Are humans changing the C-cycle?	R 9/15		
5	Anthropogenic Global Warming (AGW)	9. Other forcings, feedbacks, sensitivity; testing for AGW	T 9/20	<b>Midterm 1</b>	Mathez 5 Dessler 6,7 Scientific Guide to GW Skepticism
		<b>Midterm Exam 1</b>	R 9/22		
6	Ice cores & international climate policy	<b>Ice core research – carbon emissions negotiations</b>	T 9/27	<b>Tour of BPCRC &amp; climate negotiations</b>	EPICA, 2004; White, 2004; "Frozen Time"
			R 9/29		
7	Understanding past climates	10. Paleoclimatology	T 10/4		Cronin 2
		Natural climate variability on longer scales	R 10/6		
8	An historic science discovery: Ice Ages	Explaining the pacing of Quaternary Ice Ages	T 10/11	<b>Proxy Paper (Due 10/11)</b>	Imbrie & Imbrie, Chp 1-3: <i>Ice Ages: Solving the Mystery</i> (Milankovitch tutorial on Carmen Links)
		<b>No class – Fall break</b>	R 10/13		
9	Expanding time scales of change	Discussion of Ice Ages / Milankovitch Theory	T 10/18	<b>Exercise 2 (Due 10/20)</b>	Cronin 8; Mayewski et al. 2004 Imbrie & Imbrie, Chp 1-3
		Ice Age to Holocene climate	R 10/20		
10	Humans and Holocene climate changes	Holocene climate variability and society; Early Anthropocene	T 10/25		Cronin 9; Alley, 2004 Ruddiman 2003, 2005
			R 10/27		
11	Internal climate variability & modeling climate	Internal climate variability	T 11/1	<b>Synopsis &amp; annot biblio (Due 11/1)</b>	For 11/1: Stenseth et al. 2002; Hsiang et al. 2011  For 11/3: Mathez 9 – Climate Models & Future
		Intro to emission scenarios in models	R 11/3		

12	Future climate	What will be likely climate futures & impacts to deal with	T 11/8	<b>Midterm 2</b>	Dessler 8-12
		<b>Midterm Exam 2</b>	R 11/10		
13	Reconsidering energy and reducing emissions	Ohio's Energy portfolio	T 11/15	<b>Exercise 3: Wedges game (in class, 11/17)</b>	Review OH portfolio: <a href="http://www.eia.gov/state/?sid=OH">http://www.eia.gov/state/?sid=OH</a> Wedges game intro material
		How to consider options? <b>Wedges Exercise</b>	R 11/17		
14	Adaptation, mitigation & geoengineering	Beyond Paris: Where do we go from here?	T 11/22		
		<b>No class Thanksgiving</b>	R 11/24		
15	Facing future climate changes & policy response	<b>Group presentations 1</b>	T 11/29	<b>Final project presentations [POSTERS]</b>	
		<b>Group presentations 2</b>	R 12/1		
16	Wrap up	<b>REVIEW</b>	T 12/6	<b>Final paper (Due 12/6)</b>	