

ATM S 211 Climate and Climate Change

Tentative Lecture Schedule for Autumn 2018

Below is a tentative class schedule for the quarter. Lectures may vary somewhat depending on student interest and participation. Required reading for each week is from "The Earth System" by Kump, Kasting, and Crane. I have identified the relevant chapters from the book under the column "Required reading" below.

Date	Lecture topic	Reading	Due
WEEK 1 : Introduction		Ch. 1	
W 9/26	Introduction and course overview ; Weather versus climate		
Th 9/27	Environmental change concepts		
F 9/28			
WEEK 2 : Systems and system science		Ch. 2	
M 10/1	Recent global change		
Tu 10/2	Global change on long time scales; The Earth system		
W 10/3	Couplings and Feedbacks; Daisy world		
Th 10/4	Daisy world; Electromagnetic radiation		
F 10/5			HW#1
WEEK 3 : The greenhouse effect and the atmosphere		Ch. 3	
M 10/8	Temperature scales; absorption/emission; Blackbody radiation		
Tu 10/9	Planetary energy balance		
W 10/10	Atmospheric composition; Structure of the atmosphere		
Th 10/11	The greenhouse effect		
F 10/12			HW#2
WEEK 4 : Atmospheric circulation		Ch. 4	
M 10/15	Midterm exam #1		
Tu 10/16	Climate feedbacks		
W 10/17	The movement of air; Convection		
Th 10/18	Hadley circulation and the Coriolis effect		
F 10/19			HW#3
WEEK 5 : Ocean Circulation and The Cryosphere		Ch. 5	
M 10/22	Hadley circulation and the Coriolis effect; Seasonality		
Tu 10/23	Hydrological cycle		
W 10/24	Surface ocean circulation		
Th 10/25	Surface ocean circulation; ENSO		
F 10/26			HW#4
WEEK 6 : Solid earth and the global carbon cycle		Ch. 6 and 7	
M 10/29	Midterm exam #2		
Tu 10/30	ENSO; Deep ocean circulation		
W 10/31	NO CLASS (Recorded lecture on Plate Tectonics)		
Th 11/1	NO CLASS		
F 11/2			
WEEK 7 : Climate in the deep past		Ch. 8 and 12	
M 11/5	The Cryosphere		
Tu 11/6	Carbon cycle		
W 11/7	Short-term organic carbon cycle; Long-term organic carbon cycle; Inorganic carbon cycle		
Th 11/8	Long-term climate record; Evolution of life on Earth; Faint young sun paradox		

F 11/9			HW#5
WEEK 8 : Pleistocene glaciations		Ch. 14 and 15	
M 11/12	UW Holiday (Veteran's Day)		
Tu 11/13	Long-term climate record; Glaciations and Snowball Earth		
W 11/14	Pleistocene glaciations: Milankovitch cycles		
Th 11/15	Glacial climate feedbacks; Rapid climate change; Holocene climate change		
F 11/16			HW#6
WEEK 9: Holocene climate change		Ch. 16 and 17	
M 11/19	Midterm exam #3		
Tu 11/20	Natural short-term forcings and perturbations; The last 150 years of climate change		
W 11/21	Anthropogenic perturbations to carbon reservoirs and fluxes; Future projections of climate		
Th 11/22	UW Holiday (Thanksgiving)		
F 11/23	UW Holiday (Thanksgiving)		
WEEK 10 : Unnatural changes: ozone depletion and global warming			
M 11/26	Impacts of global warming; The natural ozone layer;		1 st Draft of W paper
Tu 11/27	Catalytic cycles		
W 11/28	Human threats to the ozone layer; The ozone hole		
Th 11/29	Effects of decreases in stratospheric ozone; Regulation of CFCs		
F 11/30			HW#7
Week 11: Global warming impacts, mitigation, and regulation			
M 12/3	Geoengineering (guest lecture by Phil Rasch)		
Tu 12/4	NO CLASS (TED talk on Nuclear Winter)		
W 12/5	Climate Policy		
Th 12/6	Climate Policy		W paper
F 12/7			HW#8
FINALS WEEK			
W 12/12	Comprehensive final exam 8:30-10:20 in EEB 125		