

Spring 2009 - GEOS 204 - tentative syllabus

Below is my first stab at the syllabus. How far we actually get will depend on a variety of things. So, lets hope for the best.

Date	lab	topic	reading
20-Jan		introduction, earth system, timescales, global warming, ozone depletion, deforestation, longer timescales: glacial-interglacial cycles, geologic timescales, solar luminosity changes	ch1
22-Jan		Introduction to systems - couplings and feedbacks, equilibria, types of equilibria, perturbations, forcings, examples of systems, etc.	
	26-Jan		
27-Jan		Daisyworld, a simple model, Gaia hypothesis,	ch2
29-Jan		introduction to modelling	
	2-Feb	research projects assigned	
3-Feb		The Greenhouse effect, basics of electromagnetic radiation, interaction with matter, electromagnetic flux, inverse square laws, Blackbody radiation, laws describing blackbody radiation,	ch3
5-Feb		Two simple energy balance models	ch3
	7-Feb	field trip to Mudge Pond	
	9-Feb		
10-Feb		structure of the atmosphere	ch4
12-Feb		atmospheric circulation system	ch4
	16-Feb		
17-Feb		the coriolis effect	ch4
19-Feb		no class (Jon class)	
	23-Feb		
24-Feb		the earth's climate	ch4
26-Feb		Trinity Days	
	2-Mar	Mudge Pond symposium 1	
3-Mar		physical properties of ocean waters, ocean circulation, surface currents	ch5
5-Mar		the thermohaline circulation, influence on climate	
	9-Mar	paper deadline	
10-Mar		1. exam - systems, daisyworld, atmosphere	
12-Mar		climate models	ch6
	16-Mar	Spring break	
17-Mar		Spring break	
19-Mar		Spring break	
	23-Mar		

24-Mar	the carbon cycle, reservoirs, exchanges, short-term, long-term feedback	ch8
26-Mar		
	30-Mar	
31-Mar	origin of life, age of the earth, stellar evolution, early oceans/atmosphere, early atmosphere, how to detect life	ch10
2-Apr	rise of oxygen in the earth's atmosphere	ch11
	6-Apr	
7-Apr	long-term climate regulation	ch12
9-Apr	(maybe: biodiversity throughout history of earth)	(ch13)
	13-Apr Mudge Pond symposium 2	
14-Apr	Pleistocene glaciation, Milankovitch, feedbacks, CO2 levels through time	ch14
16-Apr		
	20-Apr	
21-Apr	recent climate change - baseline against current warming trend, the Holocene, last 200 years - how do we know?, problems and uncertainties	ch15
23-Apr	Global warming - climate change over the past 150 years	
	27-Apr	
28-Apr	2. exam (cumulative, but focused on second half of semester)	ch16
30-Apr	poster presentation at science symposium	