Schedule ATS 421/521 Spring 2013
L: lectures
C: computer lab
D: discussion
HW: Homeworks due Mondays as noted in green

Week	*Date*	*Topic*
1	Mo Apr 1	L01: Introduction, Brief History of Climate Modeling
	We Apr 3	L02: Components of Earth's Climate System, Global Energy Fluxes, The Zero-Dimensional (0D) Energy Balance Model (EBM), Ice-Albedo Feedback, Multiple Equilibria, Hysteresis
	Th Apr 4	C01: Basic UNIX commands, Introduction to FORTRAN, work on HW1
	Fr Apr 5	D01: Hansen et al. (1981)
2	Mo Apr 8	L03: Radiative Forcing, Feedbacks, Climate Sensitivity, HW1 due
	We Apr 10	L04: Stochastic Climate Models, Meridional Energy Transport,
	Th Apr 11	C02: Introduction to FERRET and PCMDI, work on HW2
	Fr Apr 12	D02: Hasselmann (1976), Huybers and Curry (2006)
3	Mo Apr 15	L05: The 1D Zonally Averaged EBM, Spatial Discretization, Spatial Boundary Conditions, HW2 due
	We Apr 17	L06: Numerics 1, Introduction, General Issues, Schemes for the Advection Equation, Euler, Leapfrog, von Neumann Stability Analysis
	Th Apr 18	C03: work on HW3
	Fr Apr 19	L07: Numerics 2, CFL Criterion, Upwind Scheme, Schemes for the Diffusion Equation
4	Mo Apr 22	no class
	We Apr 24	L08: 2D EBM, Radiative Convective Models, HW3 due
	Th Apr 25	C04: work on HW4
	Fr Apr 26	D04: Manabe and Strickler (1964), Pierrehumbert (2012)
5	Mo Apr 29	L09: Hadley Cell (Held & Hou, 1980), Review, HW4 due
	We May 1	L10: General Circulation Models I, Grids and Coordinate Systems, Spectral Method, Parameterizations
	Th May 2	C05: Review, work on HW5
	Fr May 3	Mid Term Exam
6	Mo May 6	L11: GCMs II, Non-Linear Dynamics, Chaos and the Lorenz Model (Lorenz

		1963), HW5 due
	We May 8	L12: Box Model of the Thermohaline Ocean Circulation (Stommel, 1961)
	Th May 9	C06: work on HW6
	Fr May 10	D06: Held and Hou (1980), Lorenz (1963), Stommel (1961)
7	Mo May 13	L13: Ice Sheets (Oerlemans, 1981), Sea Ice, HW6 due
	We May 15	L14: Vegetation Feedbacks and Daisyworld (Watson & Lovelock, 1983)
	Th May 16	C07: work on HW7
	Fr May 17	D07: Oerlemanns (1981), Watson and Lovelock (1983)
8	Mo May 20	L15: State-Of-The-Art Dynamic Vegetation Models (Guest lecture by Fred Saltre) , HW7 due
	We May 22	L16: Ocean Ecosystem and Carbon Cycle Models, HW7 due
	Th May 23	C08: work on HW8
	Fr May 24	D08: Friedlingstein et al. (2006)
9	Mo May 27	Memorial Day Holiday
	We May 29	L17: Regional Climate Models, Reanalyses, HW8 due
	Th May 30	C09: work on HW9
	Fr May 31	D09: Balmaseda et al. (2013), Meehl et al. (2011)
10	Mo Jun 3	L18: Evaluation of Climate Models, HW9 due
	Th Jun 5	L19: Future Projections
	We Jun 6	D10:
	Fr Jun 7	Review
11	Mo Jun 10	18:00 Final Exam