

EOS/ESCI 795/895 Fall 2002 – Earth System Science: Understanding Our Global Environment

Professors: Rob Braswell & Steve Frolking, with numerous EOS and Earth Science faculty.

Braswell: 448 Morse Hall, 2-2164, rbraswell@unh.edu. Frolking – 449 Morse Hall, 2-0244, steve.frolking@unh.edu.

Lectures: T, TH 2:10-3:30. James Hall, room 119.

Labs: Mondays 11:10-1:00. James Hall, room 20.

Working on system modeling, using Stella modeling software, taught by Braswell & Frolking.

Text: Leung, James Keating, Robert G. 1997. *The Earth System*, Prentice Hall, Upper Saddle River NJ. 315 pp.

The text will be supplemented with readings from the literature, selected by the guest lecturers. These selected advance of the specific class period in which the topic is to be discussed.

Dates	Lecture Topic	Readings	Lecturer	Lab
3,5 Sep	Intro/Overview ESS	Ch. 1 & 2	Frolking/Braswell	NO LAB
10,12 Sep	The Sun	Special Readings	Forbes	1. Stella Intro - Population
17, 19 Sep	Global Energy Balance/Greenhouse Effect	Ch. 3	Frolking/Braswell	2. Stella Intro - C cycle
24 26 Sep	Atmospheric Circulation	Ch. 4	Mao; F/B	3. Stella intro - CH ₄
1,3 Oct	Ocean Circulation	Ch. 5	Pringle	4. Energy balance
	Mid-ocean ridges	Special Readings	VonDamm	
8, 10 Oct	Global Hydrological Cycle	Special Readings	V r smarty	5. Hydrology lab
15, 17 Oct	Ice Sheets	Special Readings	Fahnestock	NO LAB
	Carbon Cycle Overview	Ch. 7	Braswell	
22, 24 Oct	Marine Carbon Cycle, biogeography, remote sensing	Special Readings	Campbell/Dowell	6. Earth Carbon Cycle
29, 31 Oct	Terrestrial Carbon Cycle – ecosystem level	Special Readings	Ollinger	7. Remote Sensing
5, 7 Nov	Atmos. Chemistry - acid precipitation	Ch. 14 & S.R.	Talbot/Dibb	8. Sucessional dynamics
14 Nov	(THURS ONLY) Plate Tectonics	Ch. 6	Clyde	9a. Atm chem model
19, 21 Nov	Sea level rise	Special Readings	Sahagian	9b Atm chem model
	Isotopes	Special Readings	Hobbie	
26 Nov	(TUES ONLY) Climate Change $\times 10^5$	Special Readings	Wake	10. Climate data
3, 5 Dec	SYNTHESIS - Climate Change: Holocene	Ch. 12	Wake	11. Climate data
10, 12 Dec	IPCC, global change, and the political process	Ch. 13, IPCC readings	Howland; F/B	NO LAB
16-Dec	Final exam week			

Grading:

¥ Essays/Exercises (~weekly), class participation, in-class writing, and a scored discussion: 50%

¥ Labs (~weekly): 25%

¥ Research paper: 25% (details provided in separate hand-out)

¥ abstract/outline due 15-Oct (15% of research paper grade)

¥ annotated bibliography due 14-Nov (30% of research paper grade)

¥ paper due 16-Dec (55% of research paper grade)