

Stayed *Surv.*
STAN Intro to ES

Earth Systems 10

Introduction to Earth Systems

Winter 93/94

MWF 9:00am
3-5 units

Gary Ernst (GE)	Don Kennedy (DK)	Larry Goulder (LG)	Steve Schneider (SS)	Jim Ingle (JI)
Roz Naylor (RN)	Jane Woodward (JW)	Bob Chatfield (BC)	Buzz Thompson (BT)	Julie Kennedy (JK)
	Terry Root (TR)	Gretchen Daily (GD)	Steve Gorelick (SG)	

Weds	Jan	5	Why in the World Study Earth Systems? (SS)
Fri	Jan	7	Time Scales -- Geological, Biological, Political (GE)
Mon	Jan	10	Earth's Place in the Solar Systems (GE)
Weds	Jan	12	Internal Constitution of the Earth (GE)
Fri	Jan	14	Plate Tectonics (GE)
Mon	Jan	17	Holiday (Martin Luther King Day)
Weds	Jan	19	Hydrologic Cycle (SG)
Fri	Jan	21	Atmospheric Heat Balance and Circulation (BC)
Mon	Jan	24	Atmospheric Chemistry (BC)
Weds	Jan	26	Atmosphere-Ocean Coupling (JI)
Fri	Jan	28	Ocean Circulation (JI)
Mon	Jan	31	Can we Forecast Climate Future Without Knowing Climate Past? (SS)
Weds	Feb.	2	Can we Predict Climate Change? (SS)
Fri	Feb.	4	Biogeochemical Cycles (JK)
Mon	Feb.	7	Global Change: Land Use (GD)
Weds	Feb.	9	Biodiversity: Result of Speciation and Extinction (DK)
Fri	Feb.	11	Ecological Response to Climate Change (TR)
Mon	Feb.	14	Geography (DK)
Weds	Feb.	16	MIDTERM
Fri	Feb.	18	Natural Hazards: Prediction and Risk (GE)
Mon	Feb.	21	Holiday (Presidents' Day)
Weds	Feb.	23	Mineral Resources: Rocks and Minerals (GE)
Fri	Feb.	25	Energy Resource Distribution (JW)
Mon	Feb.	28	Environmental Impacts of Energy Use (JW)
Weds	Mar	2	The Leap from Environmental Science to Policy (LG)
Fri	Mar	4	Confronting the Prospect of Global Climate Change: U.S. Policy Options (LG)
Mon	Mar	7	U.S. Water Law: Case Study in the Southwest (BT)
Weds	Mar	9	Can Developing Countries Afford a Clean Environment? (RN)
Fri	Mar	11	Agricultural Policy, Growth and the Environment (RN)
Thurs	Mar	17	Final @ 8:30-11:30 . (Room to be announced)

Discussion Sections: Times and days to TBA; Sign-ups will be in class

Field Trips: There are two required field trips

Jasper Ridge - one of three dates offered:

Tues. Feb. 8th 1-5:00; Weds. Feb. 9th 1-5:00; Thurs. Feb. 10th 9-1:00

San Andreas Fault - Feb. 26 (Sat.) all day

Office Hours:

Gary Ernst (Prof.)-- by appointment (3-2750)

Justin Hayes (Head TA) / Weds. 2:30-3:30 in Bldg. 360 rm. 360A (ph# 7-6428)

Geoff Garrison (TA) / TBA (ph# 855-9086)

Andrew Malk (TA) / Thurs. 4:30-5:30 Location TBA (ph# 323-7705)

If you have any questions, see Justin Hayes. Talk to him in class or in his office, Bldg. 360-360A.

Introduction to Earth Systems (ESys 10)

TEXTS:

Required:

- The Dynamic Planet. Ernst, W.G., 1990.
- One Earth, One Future. Silver, C. S. National Academy of Sciences, 1990.

Reserve:

- Science Matters, Hazen, R.M. and Trefil, D. 1991
- The Earth System, Laing, D. 1990
- The Dynamic Earth, Skinner, B. J., and Porter, S. G. 1989
- Confronting Climate Change, National Research Council, National Academy of Sciences, 1990.
- Policy Implications of the Green House Effect, National Academy of Sciences 1991
- Technology and Environment, Ausubel, J. H, and Sladovich, H. E. 1990
- Biodiversity, Wilson, E.O. 1991

Grading:

	<u>3 units</u>	<u>5 units</u>
Midterm	100	100
Field Trips/Section	50	50
Final	200	200
Paper	<u>0</u>	<u>200</u>
	350	550

Earth Systems 10 - Introduction to Earth Systems
 Winter Quarter MWF 10-11am, 3 units
 Lecture Schedule

Gary Ernst (GE)	Don Kennedy (DK)	Jonathan Roughgarden (JR)
Larry Goulder (LG)	Pam Matson (PM)	Steve Schneider (SS)
Jim Ingle (JI)	Roz Naylor (RN)	Jane Woodward (JW)

Wed. Jan. 6 Why in the World Study Earth Systems Science? (SS)
 Fri. Jan. 8 Time Scales - Geologic, Biologic, Political (GE)
 Mon. Jan. 11 Earth's Place in the Solar System (GE)
 Wed. Jan. 13 Internal Constitution of the Earth (GE)
 Fri. Jan. 15 Plate Tectonics (GE)
 Mon. Jan. 18 HOLIDAY
 Wed. Jan. 20 Hydrologic Cycle (GE)
 Fri. Jan. 22 Atmosphere-Ocean Coupling (JI)
 Mon. Jan. 25 Ocean Circulation (JI)
 Wed. Jan. 27 Biodiversity: Result of Speciation and Extinction (JR)
 Fri. Jan. 29 Evolution: Adapting to Global Change (JR)
 Mon. Feb. 1 Biological Resources: Integration of Oceanographic and Ecological Processes (JR)
 Wed. Feb. 3 Can We Forecast Climate Future Without Knowing Climate Past? (SS)
 Fri. Feb. 5 Can We Predict Climate Change? (SS)
 Mon. Feb. 8 Biogeochemical Cycles (PM)
 Wed. Feb. 10 Global Change: Land Use and Emission (PM)
 Fri. Feb. 12 Physical Geography (DK)
 Mon. Feb. 15 HOLIDAY
 Wed. Feb. 17 MID-TERM
 Fri. Feb. 19 Natural Hazards, Prediction and Risk (GE)
 Mon. Feb. 22 Mineral Resources / Rocks and Minerals (GE)
 Wed. Feb. 24 Energy Resource Distribution (JW)
 Fri. Feb. 26 Environmental Impacts of Each Current and Potential Source of Energy (JW)
 Mon. Mar. 1 The Leap from Environmental Science to Policy (LG)
 Wed. Mar. 3 Confronting the Prospect of Global Climate Change: U.S. Policy Options (LG)
 Fri. Mar. 5 Confronting the Prospect of Global Climate Change: Is International Coordination Possible? (LG)
 Mon. Mar. 8 Can Developing Countries Afford a Clean Environment? (RN)
 Wed. Mar. 10 Agricultural Policy, Growth and the Environment (RN)
 Fri. Mar. 12 Roundtable Discussion of Global Change Issues (ALL)