

Senior  
UFL Modeling the Earth

**GLY 6932**  
**"Special Topics in Modeling the Earth System**  
**Spring 1994**

**Description:** This course is designed to be the second in a two-part series of special topics seminars offered in Advanced Earth System Science. In AY 1993-1994, we will offer a two-part course with Biogeochemical Cycles in the Fall and Modeling the Earth System in the Spring. In the Fall, students will gain a qualitative, descriptive understanding of major elemental cycles among the the biosphere, hydrosphere, atmosphere, and geosphere. In the Spring, students will learn how to develop simple numeric models of various components of the Earth System using systems modeling software (Stella<sup>®</sup>) on an Apple Macintosh.

**Credit hours:** 3 credits

**Meeting time:** Class will meet on Thursday from 9Am to 12 Noon

**Meeting place:** Class will be held in the CIRCA Macintosh Computer teaching classroom in Weil 408C.

**Enrollment:** Class will be limited to 20 students.

**Prerequisite:** Biogeochemical Cycles (taught in the Fall) is strongly recommended as a prerequisite for Modeling the Earth System (taught in the spring).

**Instructors:** David A. Hodell and Gregory A. Mead, Dept. of Geology, B121 and B115 Turlington Hall, 392-6137, 392-3344.

**Software:** The entire course will center around Stella<sup>®</sup>II developed by High Performance Systems, Inc., 45 Lyme Road, Suite 300, Hanover, NH 03755 (613) 643-9636. Purchase of Stella II is **optional** for this course because it is available on the CIRCA Macintosh server and in the Dept. of Geology's computer laboratory. Stella can be accessed from any of the CIRCA microlabs. If you wish to own your own copy of Stella, it will be available through the UF Technology Hub at a student discount price of \$65. An IBM version of Stella is soon to be released, so IBM users should hold off.

**Manuals:** Stella manuals will be available in the Geology computer lab and can also be obtained from the CIRCA operations desk in the labs.

**Grading:** Grade will be based upon performance on weekly modeling exercises (50%) and a final modeling project (50%) to be chosen by the student.

**GLY 6932 - Modeling the Earth System  
Syllabus**

**Thursday, Jan. 6**

**Introduction to Stella**

**Thursday, Jan. 13**

**Stella Exercise #1: The Uranium Decay Series**

**Thursday, Jan. 20**

**Stella Exercise #2: Energy Balance Model, Black body**

**Thursday, Jan 27**

**Stella Exercise #3: EBM, Black body with atmosphere**

**Thursday, Feb. 3**

**Stella Exercise #4: Carbon Cycle**

**Thursday, Feb. 10**

**Stella Exercise #5: Coupled Population, CO<sub>2</sub>, EBM**

**Thursday, Feb. 17**

**Stella Exercise #6: Elemental Cycles - Group Project**

**P Cycle: Balsler, Bulmer, Catches**

**N Cycle: Curtis, Denizman, Fountain**

**S Cycle: McGrane, Mejia, Mirabal**

**O Cycle: Moffor, Spencer, Zorn**

**Thursday, Feb. 24**

**Presentation of Group Exercises (30 min. for each group)**

**Thursday, March 3**

**Presentation of Modeling Projects**

**Each student will give a 10 minute presentation on the choice of their Modeling Project**

**Thursday, March 10**  
**SPRING BREAK WEEK**

**Thursday, March 17**  
**Stella Exercise #7: 4 Box ocean model (Wally Broecker Superproblem #1)**

**Thursday, March 24**  
**30 minute progress presentation**  
**Balser, Bulmer, Catches, Curtis**

**Thursday, March 31**  
**30 minute progress presentation**  
**Denizman, Fountain, McGrane, Mejia**

**Thursday, April 7**  
**30 minute progress presentation**  
**Mirabal, Moffor, Spencer, Zorn**

**Thursday, April 14**  
**Guest Lecturer: Dr. Mark Chandler on General Circulation Models**

**All Stella Exercises and Final Project due by April 28**