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SCI 226.01: General Earth and Life Science

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Course Syllabus & Lecture/Lab Outline**SCI 226****Spring 2003****Instructor:** Dr. Kevin Murray.**Office:** HS 112 (office hours Tues: 1:00 – 2:30 pm)**Phone:** 243-4130**email:** kmurray@selway.umn.edu**Science 226 home page:** <http://www.cas.umn.edu/science226>

Course Content. SCI 226 is a course designed to explore the interconnections between earth physical characteristics and processes and living organisms. Geologic events since the formation of the earth have had profound effects on the course of biological change. Likewise, modern geological processes and conditions strongly affect the distribution, abundance and characteristics of living organisms. But living things have also had fundamental and substantial effects on the physical characteristics of our planet, including geologic features of the earth as well as characteristics of the atmosphere and hydrosphere. Earth history and biological history have been episodic; many revolutionary changes in the life-earth system have punctuated the history of our planet. Hopefully, this course will help you appreciate connections among living and non-living parts of the earth-biosphere system, how the history of the earth is intertwined with the history of life and how scientists engage in inquiry about the natural world we live in.

There are two lectures a week (11:10 – 12:30; T, Th) as well as 2, two-hour lab meetings. It is required that you attend lecture, discussion and laboratory components of the course. Lack of attendance in lecture or lab will be noted and will affect final grade. Furthermore, your professors as well as other students will appreciate your participation in lecture (asking/responding to questions). Your lecture notes will be of prime importance when studying for exams, and classroom participation will help reinforce course concepts.

Text. *Earth System History*, by Steven M. Stanley, 1999, is required. On **reserve in the library** will be several copies of supplementary texts that expand on the **biological principles** covered in lecture; reference to the reserve texts is indicated as **MLR** (Mansfield Library Reserve) in lecture schedule.

Grading. There will be 3 regular session exams and a final exam; the final is partly comprehensive. Exams will consist of objective (true/false, multiple choice) as well as short answer questions. Each exam will be worth approximately 75 points; the final comes in at around 100 points. **Scantron (Parscore)** answer forms are required for all exams. Your grade can be modified (either up or down) by classroom attendance and participation. Your final grade in this course will be a composite of your lecture and laboratory scores and performance. Your laboratory instructor will explain grading procedures and student obligations during the laboratory segment of the course.

Makeup exams. With legitimate evidence makeup exams will be scheduled, typically one week following the date listed in the lecture schedule. NOTE: there will be no makeup for the final.

Lab. Students are required to attend lab sessions and actively participate in lab/field investigations. Lab investigations will require teamwork and student interaction. This is viewed as a crucial component of the lab experience. You will need a **lab notebook** (minimum 5x7; spiral bound). The notebook should be a record of investigations made in lab or in the field. Your lab instructor will periodically examine the contents of your notebook for content and clarity; your lab instructor will further assess your performance in lab through quizzes, participation & interaction with other students.

Your lab “textbook” is a Web-based resource. While some copies of lab procedures will be available in lab, it is your responsibility to read, study and print lab exercises before coming to lab meetings. Use of virtual learning tools is a critical part of education at all levels, and demonstration of your proficiency in its use is a component of SCI 226.

SCI 226 Course Outline

Date	Lecture Topic	Readings	Lab Activity
Jan 28	course introduction		no lab this week
Feb 30	earth origins	285-296	
Feb 04	earth structure & change	13-18, 22-27	Lab 1: lab introduction /tools
Feb 06	rocks & minerals	5-8, 29-54	lab introduction/tools
Feb 11	rocks & minerals	29-54	Lab 2: minerals & rocks
Feb 13	origins of life	306-312	minerals & rocks
Feb 18	basics of cells	MLR	Lab 3: the nature of cells
Feb 20	basics of cells	MLR	the nature of cells
Feb 25	diversity of life	63-76	Lab 4: plant/animal diversity
Feb 27	EXAM I		plant/animal diversity
Mar 04	plate tectonics	207-229	Lab 5: plate tectonics
Mar 06	continents & mountains	231-250	plate tectonics
Mar 11	continents & mountains	231-250	Lab 6: topographic maps
Mar 13	major mountains of the world		geologic maps
Mar 18	evolution & fossils	181-204	Lab 7: fossils
Mar 20	evolution & fossils		fossils
Mar 25	Spring vacation		
Mar 27	Spring vacation		
Apr 01	evolution summary		Lab 8: soils & plant growth
Apr 03	EXAM II		soils & plant growth
Apr 08	history of life	chaps 12-20	primary school: <i>questions & answers</i> in science
Apr 10	history of life		
Apr 15	ecology fundamentals	94-98; MLR	Lab 9: lichen biodiversity
Apr 17	photosynthesis	261-262; MLR	lichen biodiversity
Apr 22	photosynthesis	257-274	Lab 10: photosynthesis
Apr 24	biogeochemistry		photosynthesis
Apr 29	environments & life	91-108, 121-137	Lab 8 cont: plant growth
May 01	environments & life	91-108, 121-137	campus field trip
May 06	environmental concerns	MLR	soils/plant growth summary
May 08	environmental concerns	MLR	final review
May 12	Final 8:30-10 am		