Lessons from the Biosphere

MAP NS-2 course  V55-0311
Fall 2005
M&W 3:30 – 4:45  121 Meyer

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SYLLABUS

----EVOLUTION----

Thursday September 15: Introduction to course *and the* big bang to the origin of Earth.

M&T Sept. 19 & 20—LAB 2: Evidence for Evolution. (Lab Number 1 was “Introduction to the Universe,” run the previous week, in the course that was subsequently cancelled.) The write-up for this lab was handed out during lecture on Thursday, September 15.

Tuesday September 20: Earth comes alive *and* The molecules of evolution. The textbook will be in the bookstore by Wednesday, September 21. (Liebes: pages 21-53 for main text, pages 21-38 for timeline text and images).

Thursday September 22: Bubblers, bluegreens, & breathers *and* The multicreatured cell. (Liebes: pages 53-103 for main text, pages 38-104 for timeline text and images).

M&T Sept. 26 & 27—LAB 3: American Museum of Natural History trip (No formal lab meeting, students go on their own time for trip to American Museum of Natural History.) The write-up for this lab will be handed out during lecture on Thursday, September 22.

Tuesday September 27: Multicelled creatures *and* Big life comes ashore. (Liebes: pages 103-140 for main text, pages 104-167 for timeline text and images).

Thursday September 29: Reptiles reign *and* Asteroid impact brings mammals to the fore. (Liebes: pages 141-170 for main text, pages 167-196 from timeline text and images).

M&T October 3&4—LAB 4: Student presentations on human evolution (see write-up for LAB 3.)

Tuesday October 4: The great brain experiment. (Liebes: pages 170-208 for main text, pages 196-203 for timeline text and images).

Thursday October 6: The evolution of mind.

M&T October 10 & 11 —no labs this week, because Monday October 10 is a holiday.

**Tuesday October 11: Exam # 1 — Evolution**

-----BIODIVERSITY-----
Thursday October 13: The great wealth of life: biodiversity. (Bush, chapter 1)
M&T Oct. 17&18—LAB Week 5: Techniques of microscopy.
Tuesday October 18: Who needs sex anyway? (Bush, chapter 2)
Thursday October 20: The power of predators. (Bush, chapter 3)
M&T Oct. 24&25—LAB 6: Biodiversity of Microscopic Life
Tuesday October 25: Biomes. (Bush, chapter 4)
Thursday October 27: Making connections: fisheries. (Bush, chapter 5)
M&T Oct. 31&Nov. 1—LAB 7: Biodiversity in the marketplace.
Tuesday November 1: Habitat fragmentation and extinction (Bush, chapter 6)
Thursday November 3: Working to save biodiversity. (Bush, chapter 7)
M&T Nov. 7&8—LAB 8: Student Presentations on Endangered Species.
Tuesday November 8: Current topics on biodiversity (Directed readings).

19. Thursday November 10: Exam #2 — Biodiversity

-----GLOBAL CYCLES-----

M&T Nov. 14&15—LAB 9: Photosynthesis.
Tuesday November 15: Breathing of the biosphere—the carbon cycle. (Volk, chapter 1)
Thursday November 17: A global holarchy—the nitrogen cycle. (Volk, chapter 2)
M&T Nov. 21&22—LAB 10: Respiration.
Tuesday November 22: Outer light, inner fire; The parts of Gaia (Volk, chapters 3&4)
Thursday November 24: Thanksgiving—No class.
M&T Nov. 28&29—LAB 11: Part 1 of Student Presentations on Helping the Biosphere.
Tuesday November 29: Worldwide metabolisms. (Volk, chapter 5)

Thursday December 1: Embodied energy. (Volk, chapter 6)

M&T Dec. 5&6.—LAB 12: Part 2 of Student Presentations on Helping the Biosphere. Final Lab week.

Tuesday December 6: Either Ecopalooza or The music of this sphere. (Volk, chapter 7)

Thursday December 8: Gaia in time and the human guild. (Volk, chapter 8) (If Ecopalooza is held on December 6, we will also cover “The music of this sphere” (Volk, chapter 7) during this lecture.

Tuesday December 13: Conclusion and Open Review (last class session before final exam).

FINAL EXAM: Either Tuesday, December 20 or Thursday December 22. Time 4:00-5:50. Date will be announced in class as soon as it if finalized.

Books:

• For the "Evolution" section of the course—Liebes, Sidney; Elisabet Sahtouris, & Brian Swimme. A Walk Through Time: From Stardust to Us.

• For the "Biodiversity" section of the course—Bush, Mark B. Ecology of a Changing Planet. (This is a custom printing of 7 chapters from a larger text, specially chosen for this course). Plus required directed readings from articles, to be announced.

• For the "Global Cycles" section of the course—Volk, Tyler. Gaia's Body: Toward a Physiology of Earth.

GRADING:

Labs 35% Test#1 20% Test #2 20% Final 25%

• Labs are important; unexcused labs receive “0”, a total of three unexcused labs results in “F” for the course.

Blackboard: I will use the blackboard site for the course to post this syllabus, previous exams, and other information about the course during the semester. Last year, for instance, the readings for the final third of the course on “global cycles” were all posted, drawn from my own writings on the subject.