Biol 3250, Fall 2012
Tentative schedule of topics

Week 1 (14, 16 Aug)

14 Aug: Introduction to ecology and evolution; overview of course.

16 Aug: Science and religion "conflict".

Lab Week 1: Natural history and natural history notes.

Week 2 (21, 23 Aug)

21 Aug: History of evolutionary biology (from the Greeks to the geeks).

23 Aug: Macroevolution I (phylogeny and "tree-thinking").

Lab Week 2: Forest diversity, part I (South Forty)

Week 3 (28, 30 Aug)

28 Aug: Molecular evolution (sources of genetic variation, genetic distance, molecular clocks).

30 Aug: Microevolution I (one locus Hardy-Weinberg).

Lab Week 3: Methods of phylogenetic reconstruction.

Week 4 (04, 06 Sept)

04 Sept: Microevolution II (two locus Hardy-Weinberg).

06 Sept: Microevolution III (one locus HW review; "inbreeding").

Lab Week 4: Microsatellite DNA analysis I.

Week 5 (11, 13 Sept)

11 Sept: Microevolution IV (assortative mating/disassortative mating).

13 Sept: Review Session I.

Lab Week 5: Microsatellite DNA analysis II.

Week 6 (18, 20 Sept)

18 Sept: **Midterm I**.

20 Sept: Microevolution V (genetic drift and gene flow).

Lab Week 6: Fun with finite populations (coins and M&Ms).

Week 7 (25, 27 Sept)

25 Sept: Microevolution VI (balance of gene flow and drift: "genetic connectivity"; admixture).

27 Sept: Microevolution VII (natural selection).

Lab Week 7: Hungry birds, Pipus cleanius, and modes of natural selection.

Week 8 (02, 04 Oct)

02 Oct: Macroevolution II (species concepts; levels of selection).

04 Oct: Macroevolution III (speciation, extinction, tempo and mode of evolution).

Lab Week 8: Surprise Lab.

Week 9 (09, 11 Oct)

09 Oct: Macroevolution IV: (evolutionary constraint, "the adaptationist program", evodevo; teleology)

11 Oct: Population ecology I (demography, exponential population growth).

Lab Week 9: *Survivorship lab.*

Week 10 (16, 18 Oct)

16 Oct: FALL BREAK.

18 Oct: Population ecology II (discrete population growth, time lags, logistic population growth).

Lab Week 10: FALL BREAK, no lab.

Week 11 (23, 25 Oct)

23 Oct: Population Ecology III (intraspecific competition and dispersal; metapopulation theory).

25 Oct: Review session II.

Lab Week 11: *Forest diversity, part II (Lake Louise)*

Week 12 (30 Oct, 01 Nov)

30 Oct: **Midterm II**.

01 Nov: Life history evolution (modes of sexual reproduction, sexual conflict and selection, mating systems)

Lab Week 12: Forest diversity lab, part III (South Forty)

Week 13 (06, 08 Nov)

06 Nov: Community ecology I (interspecific competition, resource partitioning, niches).

08 Nov: Community ecology II (predator-prey interactions; Lotka-Volterra model).

Lab Week 13: Forest diversity lab: data work-up.

Week 14 (13, 15 Nov)

13 Nov: Community ecology III (stratification and zonation: community structure and diversity).

15 Nov: Community ecology IV (succession; island biogeography).

Lab Week 14: First drafts due

Week 15 (20, ~~22~~ Nov)

20 Nov: Ecosystem Ecology (energy cycling).

~~22~~ Nov: NO CLASS (Thanksgiving break)

Lab Week 14: NO LAB

Week 16 (27, 29 Nov)

27 Nov: Review session III.

29 Nov: **Midterm exam III.**

Lab Week 15: Final drafts due

Week 17 (03, 06 Dec)

06 Dec: **Final Exam (10:15am-12:15pm).**