

## Biol 3250, Spring 2012: **Schedule of topics**

### Week 1 (08, 10 Jan)

08 Jan: Introduction to ecology and evolution; overview of course.

10 Jan: Science and religion “conflict”.

*Lab Week 1: Natural history and natural history notes.*

### Week 2 (15, 17 Jan)

15 Jan: History of evolutionary biology (from the Greeks to the geeks).

17 Jan: Macroevolution I (phylogeny and “tree-thinking”).

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

### Week 3 (22, 24 Jan)

22 Jan: Molecular evolution (sources of genetic variation, genetic distance, molecular clocks).

24 Jan: Microevolution I (one locus Hardy-Weinberg).

*Lab Week 3: Methods of phylogenetic reconstruction.*

### Week 4 (29, 31 Jan)

29 Jan: Microevolution II (one locus HW review; two locus Hardy-Weinberg).

31 Jan: Microevolution III (two locus HW review; “inbreeding”).

*Lab Week 4: Microsatellite DNA analysis I.*

### Week 5 (05, 07 Feb)

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

07 Sept: Review Session I.

*Lab Week 5: Microsatellite DNA analysis II.*

Week 6 (12, 14 Feb)

12 Feb: **Midterm I.**

14 Feb: Microevolution V (genetic drift and gene flow).

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

Week 7 (19, 21 Feb)

19 Feb: Microevolution VI (balance of gene flow and drift: “genetic connectivity”; admixture).

21 Feb: Microevolution VII (natural selection).

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

Week 8 (26, 28 Feb)

26 Feb: Macroevolution II (species concepts; levels of selection).

28 Feb: Macroevolution III (speciation, extinction, tempo and mode of evolution).

*Lab Week 8: Surprise Lab.*

Week 9 (05, 07 Mar)

05 Mar: Macroevolution IV: (evolutionary constraint, “the adaptationist program”, evodevo; teleology)

07 Mar: Population ecology I (demography, exponential population growth).

*Lab Week 9: Rewriting papers.*

Week 10 (12, 14 Mar)

12 Mar: Population ecology II (discrete population growth, time lags, logistic population growth).

14 Mar: Population Ecology III (intraspecific competition and dispersal; metapopulation theory).

*Lab Week 10: Forest diversity, part II (Langdale Park).*

Week 11 (19, 21 Mar)

19 Mar: Spring Break, no class.

21 Mar: Spring Break, no class.

Lab Week 11: Spring Break, no lab.

Week 12 (26, 28 Mar)

26 Mar: Review Session II.

28 Mar: **Midterm II.**

*Lab Week 12: Forest diversity lab, part III (Lake Louise)*

Week 13 (02, 04 Apr)

02 Apr: Life history evolution (modes of sexual reproduction, sexual conflict and selection, mating systems).

04 Apr: Community ecology I (interspecific competition, resource partitioning, niches).

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

Week 14 (09, 11 Apr)

09 Apr: Community ecology II (predator-prey interactions; Lotka-Volterra model).

11 Apr: Community ecology III (stratification and zonation: community structure and diversity).

*Lab Week 14: First drafts of tree paper due; peer review.*

Week 15 (16, 18 Apr)

16 Apr: Community ecology IV (succession; island biogeography).

18 Apr: Ecosystem Ecology (energy cycling).

*Lab Week 14: Tree Lab final drafts due (date: TBA).*

Week 16 (23, 25 Apr)

23 Apr: Review session III.

25 Apr: **Midterm exam III.**

*Lab Week 15: No lab.*

Week 18 (02 May)

02 May: **Final Exam (10:15am-12:15pm).**