

Approximate Lecture Schedule

<u>Lec</u>	<u>Date</u>	<u>Lecture Title</u>	<u>Subject</u>
1	Jan 22	What is Ecological Genetics?	Course Introduction

Adaptation

2	Jan 24	Adaptation and why we study it	Principles of phenotypic adaptation.
3	Jan 29	The Null Hypothesis	Genetic drift.
4	Jan 31	Phenotypic adaptation I	Understanding how selection alters phenotypic distributions in populations.
5	Feb 5	Phenotypic adaptation II	Realized response to selection, including correlated traits and correlated responses to selection.
6	Feb 7	Phenotypic adaptation III	Calculating fitness from empirical data, and using change in allele frequency as a test for adaptation. Understanding the balance between selection and drift.
7	Feb 12	Molecular Evolution I	Tests based on the site frequency spectrum.
8	Feb 14	Molecular Evolution II	The coalescent.
9	Feb 19	Molecular Evolution III	Longer-term molecular evolution.
10	Feb 21	Life History Tradeoffs	Tradeoffs and constraints on adaptation.

Quantitative Genetics

11	Feb 26	Intro to Quantitative Genetics	Fundamental concepts in quantitative genetics.
12	Feb 28	Intro to Genetic Mapping	Fundamental concepts in genetic mapping.
13	Mar 5	QTL mapping	QTL mapping.
14	Mar 7	Association Mapping	Candidate gene based and genome-wide association studies.

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15	Mar 12	“Truth” in Mapping	Interpretation of quantitative genetic map results.
16	Mar 14	The Stickleback Model System	Sticklebacks as a system for the study of adaptation and quantitative genetics.

SPRING BREAK

Population Structure

17	Mar 26	Intro to Structured Populations	Genetic drift and migration in substructured populations.
	Mar 28	Exam on Adaptation and Quantitative Genetics	
18	Apr 2	Structured Populations II	F_{ST} , STRUCTURE, and other tests that quantify subdivision.
19	Apr 4	Structure and Adaptation	The effects of population structure on adaptation.
20	Apr 9	Structure and Genetic Mapping	The effects of population structure on genetic mapping.
21	Apr 11	Speciation	Speciation as a consequence of population subdivision.

Community Genetics and Genetical Ecology

22	Apr 16	Coevolution I	Modes and consequences of co-evolution among species.
23	Apr 18	Coevolution II	The special case of host-pathogen interactions.
24	Apr 23	Community Genetics I	The role of genetic diversity in ecosystem diversity, productivity, and stability.
25	Apr 25	Community Genetics II	Evolutionary “feedback” through community structures.
26	Apr 30	Conservation Genetics	The role of genetic thinking in conservation biology.
27	May 2	Buffer/catch-up lecture	TBD