Syllabus for BIOL 701: Likelihood Methods in Biology

Monday and Wednesday 10-10:50 AM
2025 Haworth
Course website: `http://phylo.bio.ku.edu/courses/likelihood`

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Office hours by appt.

Grades will be based on class participation and homework assignments. We will have approximately one homework assignment per week.

Approximate Schedule of Topics

Week 1	Jan 23	Probability, random variables, distributions
Week 2	Jan 28, Jan 30	Random samples, sample distributions, likelihood
Week 3	Feb 04, Feb 06	Explicitly specifying variability: likelihood examples
Week 4	Feb 11, Feb 13	Maximum likelihood estimation and Markov chains
Week 5	Feb 18, Feb 20	Generalized Linear Models
Week 6	Feb 25, Feb 27	Generalized Linear Models (continued)
Week 7	Mar 04, Mar 06	Likelihood ratio test statistic and Model Selection
	Mar 11 - Mar 15	SPRING BREAK
Week 8	Mar 18, Mar 20	Introduction to Bayesian methods
Week 9	Mar 25, Mar 27	Parametric bootstrapping
Week 10	Apr 01, Apr 03	Computational aspects: numerical optimization
Week 11	Apr 08, Apr 10	Computational aspects: Markov chain Monte Carlo (MCMC)
Week 12	Apr 15, Apr 17	Multiparameter MCMC
Week 13	Apr 22, Apr 24	Hastings ratio and model jumping
Week 14	Apr 29, May 01	Special topics: based on student suggestions
Week 15	May 06, May 08	Special topics: based on student suggestions