

Techniques in Molecular Systematics

Instructor: Brice Noonan
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Class time: T (available time in late AM) Office Hrs:
Text: Phylogenetic Trees Made Easy (Hall)
Molecular Markers, Natural History, and Evolution (Avisé)

Week 1: Aug. 25	Introduction to molecular methods
Week 2: Sept. 1	Current and next generation techniques.
Week 3: Sept. 8	Genbank. Data mining.
Week 4: Sept. 15	Laboratory introduction, training. DNA extraction.
Week 5: Sept. 22	Extraction quantification. PCR. PCR assay.
Week 6: Sept. 29	Sequencing reactions. Reaction cleanup.
Week 7: Oct. 6	Sequence submission & intro to cloning.
Week 8: Oct. 13	Cloning.
Week 9: Oct. 20	Cloning continued. Sequencing.
Week 10: Oct. 27	Sequence editing. Alignment.
Week 11: Nov. 3	Alignment continued. Introduction to analyses.
Week 12: Nov. 10	Interspecific & Intraspecific analyses.
Week 13: Nov. 17	Data analysis. Data mining.
Week 14: Nov. 24	Thanksgiving Holiday
Week 15: Dec. 1	Individual assistance & guidance.
Final	Project due

Grading:

Participation: 50 pts.
Class Project: 50 pts.

The goal of this course is to familiarize the student with current techniques for obtaining and analyzing molecular data to be used in studies of systematics as well as bio/phylogeography and population genetics. Students will spend a great deal of time in both the classroom and the laboratory mastering the basic techniques of PCR, DNA sequencing and cloning. The goal of this course is to fully prepare graduate students for the work that will be required of their thesis work, should it include molecular methods.

Grading will be based on participation in class, mastery of methodology, and a written paper based on data analyzed (and possibly obtained) during the semester.