

Course instructors: Bernie May, Holly Ernest, John Eadie

Objectives of course

- learn key genetic data analysis concepts and programs through group and individual presentations to class
- gain an appreciation of when to use various programs
- learn through use of software on data sets in a computer lab

- guidance provided by May, Ernest, and Eadie lab members who are experienced in various programs (see attached spread sheet)
- class will produce updated web pages describing applications of the software that will be added to our lab web sites

Students assigned as their group's contact person (see below) should get guidance from May/Ernest/Eadie, and email members of their group and start planning at least 2-3 weeks in advance

--This course is for you, so if you want to switch topics with someone, or have suggestions for structure of the course - please tell us

Week # Date Students discussion leaders Session Topic

Participants missing first 1-2 weeks due to international travel: Joana Fernandes (back on Jan 8), Catarina Ginga (back on Jan 14), Jason Sexton (back 1/12/2007)

Participants missing other days: Mariah Meek missing weeks 3-6; Kayce Anderson missing Weeks 5-6

Week #	Date	Students discussion leaders	Session Topic
1	1/5/2007	AFLP - Molly Stephens mtDNA - Rachel Schwartz Msat - Josh Hull	Intro to population genetic analysis: talks and discussions by 4 grad student researchers Student presentations would focus on the analytic approach to the DNA type, and only minimally mention the system/taxa used (just enough to whet listeners' appetites) Student presenters would lead students on computer terminals through a basic data set to illustrate characteristics of data
2	1/12/2007	Ann Chang Jennnifer Kurushima Elizabeth Long Adam Wentzell Jessica Petersen-contact person Melinda Baerwald	Review of key population genetic concepts Allele numbers & frequencies, polymorphism, and heterozygosity HWE & LD F stats exact tests Genetic distance (Nei's, etc); Mantel's test Beginner Bayesian and Maximum Likelihood concepts - the basics; compare and contrast Computer programs for population genetics data analysis: a survival guide by Laurent Excoffier and Gerald Heckel
3,4,5	Jan 19, 26, and Feb 2, 2007		Journal article discussion: Read this article by this class period by Laurent Excoffier and Gerald Heckel http://www.nature.com/nrg/journal/v7/n10/full/nrg1904.html Use of Multi-purpose programs such as Genepop to address basic pop gen questions

		Andrea Drauch-Contact Person Renate Eberl Mandi Finger Lindsay Clark	Review of the basic questions addressed with program(s) (see attached QUESTIONS spreadsheet) Walk the class through use of file formatting program(s) such as CONVERT using a data set Guide the class through use of Genepop and/or other program using a data set Students can structure the 3 weeks as they see fit and divide tasks among themselves <i>Example plan:</i> <i>Week #3: review of pop gen questions; format data using CONVERT/Microsatellite tool kit; initial use of GENEPOP for descriptive stats</i> <i>Week #4 Continue with Genepop and its use for HWE, LD, pop differentiation, F-stats, etc</i> <i>Week #5: Another program (such as GDA or Arlequin, etc) to calculate same stats as with Genepop</i>
		Rachel Simmons Joanna Fernandes	
6	2/9/2007	Sarah Brown-Contact Person Kraig Kraft Matthew Hufford	STRUCTURE - Bayesian clustering analysis Build on concepts presented in week #2, use example data set to test for population structure Address issues: choice of K, etc
7	2/16/2007	Ann Chang-Contact Person Phil Lavretsky Annabelle Kleist	Genetix - factorial correspondence analysis
8	2/23/2007	Elizabeth Long-Contact Person Catarina Ginja Jason Sexton	GeneClass2 - assignment testing Plus, notes about other programs, Structure, Arlequin for assignment
9,10	March 2 and 9, 2007	Jennifer Kurushima-Contact Person Jessica Petersen Beverly Ajie ?Mariah Meek?	Relatedness/kinship/parentage testing ML Relate, CERVUS, SPAGeDI, etc