

## PM570 - Applied Statistical Methods in Human Genetics

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**Schedule:** *Mondays, 9 am - 1 pm*

Date	Lecture Topic / Notes
January 9, 2006	Course overview Introduction to basic molecular genetics Introduction to maximum likelihood and hypothesis testing Lab: Setup UNIX accounts, basic UNIX commands, genetics software review
January 16, 2005	Martin Luther King Holiday
January 23, 2005	More basic molecular genetics and genotyping technology Gene frequency estimation Heterozygosity and polymorphism information content Methods for allele frequency estimation Estimation using the EM algorithm Lab: Basic components of genetic software
January 30, 2005	Pedigree analysis Pedigree drawing Relationship coefficients Elston-Stewart algorithm Applications of pedigree analysis Lab: Demo of pedigree drawing software
January 31, 2005	Last day to drop without a "W" (Monday Only Classes)
February 6, 2005	Pedigree analysis II Segregation analysis Heritability Inheritance inconsistencies Lab: Introduction to PREST and RELPAIR
February 13, 2005	Introduction to disease gene mapping Simple vs. complex traits Issues of study design Linkage vs. association Review for mid-term

Date	Lecture Topic / Notes
	Lab: Introduction to SOLAR
February 20, 2005	President's Day holiday
February 27, 2005	Mid-term
March 6, 2005	Linkage analysis 2-point linkage for binary traits 2-point linkage for continuous traits Lab: Introduction to Genehunter
March 13, 2005	Spring Break
March 20, 2005	Linkage analysis Genetic maps Multipoint linkage for binary traits Multipoint linkage for continuous traits Lab: More Genehunter
March 27, 2005	Association Analysis Concept of linkage disequilibrium Contrast with linkage Introduction to haplotypes Lab: SOLAR demonstration
April 3, 2005	Association Analysis Candidate genes Haplotype blocks Association/LD mapping Lab: Introduction to Haploview
April 7, 2005	Last day to drop with a "W"
April 10, 2005	Association Analysis Population stratification Statistical issues Permutation testing Lab: Review of web resources
April 17, 2005	Whole genome association
April 24, 2005	Putting it all together Type 2 diabetes as an example Review for final exam

Date	Lecture Topic / Notes
May 5, 2005	Final Exam: 8am-10am