

***BTRY 4830/6830: Quantitative Genomics and
Genetics - Fall 2014
Version 4, posted Nov. 12***

Please note that we reserve the right to alter this schedule and reading assignments: this schedule will also be updated regularly on the class website.

Date	Topic / Assignments	Lecture	Reading	Week
Aug. 26	INTRODUCTION	<i>Goals of quantitative genomics</i>		1
Aug. 28	PROBABILITY AND STATISTICS	<i>Intro. to probability I</i>		2
Sept. 2	HW #1 - Assigned	<i>Intro. to probability II</i>	Supplementary Reading#1	
Sept. 4		<i>Expectations, variances, covariances, and probability models</i>	Supplemental Document: Matrix Basics	3
Sept. 9	HW #1 - Due HW #2 - Assigned	<i>Samples and statistics</i>	Supplementary Reading#2	
Sept. 11		<i>Introduction to estimation</i>	Supplementary Reading#3	4
Sept. 16	HW #2 - Due (Sept. 17)	<i>Maximum likelihood estimators</i>		
Sept. 18		<i>Introduction to hypothesis testing I</i>	Supplementary Reading#4	5
Sept. 23	HW #3 - Assigned	<i>Introduction to hypothesis testing II</i>		

Sept. 25	MAPPING LOCI: Introduction	<i>Quantitative genomic analysis I: introduction</i>	Supplemental Reading #5	6
Sept. 30	HW #3 - Due	<i>Quantitative genomic analysis II: inference</i>		
Oct. 2	MAPPING LOCI: GWAS HW #4 - Assigned	<i>Genome-Wide Association Studies (GWAS) I: continuous traits</i>	Supplemental Reading #6	7
Oct. 7		<i>Genome-Wide Association Studies (GWAS) II: population genetics</i>		
Oct. 9	HW #4 - Due	<i>Genome-Wide Association Studies (GWAS) III: statistical and experimental issues</i>		8
Oct. 14	Fall Break	<i>No class</i>		
Oct. 16	Midterm Assigned (!!)	<i>Genome-Wide Association Studies (GWAS) IV: logistic regression 1 (the model)</i>	Supplemental Reading #7	9
Oct. 21	Midterm due: 11:59PM, Mon. Oct. 20!!	<i>Genome-Wide Association Studies (GWAS) V: logistic regression II (IRLS algorithm)</i>		
Oct. 23	HW #5 - Assigned	<i>Genome-Wide Association Studies (GWAS) VI: logistic regression III - Generalized Linear Models</i>		10
Oct. 28		<i>Genome-Wide Association Studies (GWAS) VII: haplotypes and haplotype testing</i>		
Oct. 30	HW #5 - Due	<i>Genome-Wide Association Studies (GWAS) VIII: covariates I and QQ plots</i>		11
Nov. 4	Project Assigned (Nov. 5)	<i>Genome-Wide Association Studies (GWAS) IX: covariates II and population structure</i>		

Nov. 6		<i>Genome-Wide Association Studies (GWAS) X: minimum GWAS analysis and random covariates</i>		12
Nov. 11		<i>Genome-Wide Association Studies (GWAS) X: epistasis</i>		
Nov. 13	MAPPING LOCI: BAYESIAN ANALYSIS	<i>Alternative tests / Bayesian inference I: inference basics</i>		13
Nov. 18		<i>Bayesian inference II: MCMC algorithms</i>		
Nov. 20	PEDIGREE / INBRED LINE ANALYSIS / CLASSIC QUANTITATIVE GENETICS	<i>Basics of linkage analysis / Inbred line analysis</i>		14
Nov. 25	Project Due	<i>Heritability and additive genetic variance</i>		
Nov 27	Thanksgiving	<i>No Class</i>		15
Dec. 2		<i>No Class</i>		
Dec. 5		<i>No Class</i>		