Week	Date	Lecture: Topic or Event	Dan Hartl Textbook 4th and 6th Edition	LAB ACTIVITIES
1	27/09/2021	Introduction to Genetics Course	No reading	No Lab first week
1	27/09/2021	Introduction to Genetics Course	No reading	
1	28/09/2021	Replication of Genetic Material: Cell cycle, Mitosis, Meiosis	Ch. 1.1- 1.2 (review), 3.1-3.3	
2	4/10/2021	Chromosomes & Karyotypes	Ch. 5.1 (up to p. 157), 5.4-5.5	General lab rules
2	4/10/2021	Transmission Genetics I: Mendel's laws & probability	Ch. 2.1-2.3	How to maintain a laboratory notebook
2	5/10/2021	**Problem set 1**		
3	11/10/2021	Transmission Genetics II: Probability and exceptions, sex-linked traits	Ch. 2.4-2.7, 3.7; Ch. 3.6, 5.1 (start on p. 157)	DNA barcoding of insects on campus (collect 5 insects total)
3	11/10/2021	Molecular Evolution	Ch. 14	preservation
3	12/10/2021	**Problem set 2**		
4	18/10/2021	Molecular Evolution	Ch. 14	Chromosome detective lab
4	18/10/2021	Population Genetics	Ch. 4.1-4.3	Chromosome slide preparation
4	19/10/2021	Population Genetics	Ch. 4.5-4.6	
5	25/10/2021	Gene Mapping I: genetic distance and 3-point test cross	Ch.. 7.1-7.4, 6.6	Drosophila as a model organism, biology, and life cycle
5	25/10/2021	Gene Mapping II: Recombination & Tetrad analysis		Drosophila monohybrid cross
5	26/10/2021	Bacterial Gene mapping & Restriction Enzymes		
6	1/11/2021	Methods in Genetics: recombinant DNA	Ch. 6.6-6.8, 10.1	Drosophila population genetics mating activity
6	1/11/2021	Genes to Proteins I: complementation & pathways	Ch. 8 (review), begin Ch 9	Developing hypotheses and designing an experiment
6	2/11/2021	Genes to Proteins I: complementation & pathways	Ch. 1.3-1.4	R statistics tutorial on population genetics mating activity
7	8/11/2021	**Problem set 3**		Lab report guidelines, Sample lab report
7	8/11/2021	Genetic Code & Gene Expression	Ch. 8 (review), begin Ch 9	
7	9/11/2021	Gene Regulation	Ch 9	
8	15/11/2021	Regulation of Gene Expression	Ch. 9.4-9.7	Chelex DNA extraction, PCR
8	15/11/2021	**Problem set 4 and 5**		
8	16/11/2021	Mutation & DNA repair	Ch. 12.1, 12.2, 12.5-12.7	**Project Proposal is due**
9	22/11/2021	**Review for Midterm Exam**		PCR clean-up, nanodrop, and send off for Sanger sequencing
9	22/11/2021	**Review for Midterm Exam**		
9	23/11/2021	**Midterm Exam (100 pts)**		
10	29/11/2021	DNA polymophisms & gene mapping	Ch. 4.4	Bioinformatics and editing gene sequences
10	29/11/2021	Genetic Variation & GWAS	Ch 10	
10	30/11/2021	Genome sequencing & comparative genomics	Ch. 6.8	**Meet with TAs for feedback about project proposal**
11	6/12/2021	Gene mapping in the genomic era	TBD	Constructing molecular phylogenetic trees
11	6/12/2021	Chromosomal rearrangements & disease	Ch. 5.2-5.3	How to make a scientific oral presentation
11	7/12/2021	**Paper discussion 1**		
12	13/12/2021	Genetics of Cancer	Ch 13	
12	13/12/2021	Functional Genomics & genetic engineering	Ch. 10.3-10.5	
12	14/12/2021	**Paper discussion 2**		**Give oral presentations in lab**
13	20/12/2021	Genetic basis of behavior	TBD	
13	20/12/2021	**Paper discussion 3**		
13	21/12/2021	**Genetic Engineering Ethics Debate**		
14	27/12/2021	**Paper discussion 4**		
14	27/12/2021	**Review for Final Exam**		
14	28/12/2021	**Review for Final Exam**		
15	Finals Week	**Final Exam - During Finals Week**		**Final Lab Report due at end of Finals Week**