

IB 164—Human Genetics and Genomics, Fall 2020

Instructor: Doris Bachtrog, dbachtrog@berkeley.edu

Office hours: Tuesday, 11:00 - noon.

Instructor: Peter Sudmant, psudmant@berkeley.edu

Prerequisites: Bio 1A and 1B + no fear of quantitative material. You are expected to know some basic genetics as presented in Bio 1A and Bio 1B, including and understanding of DNA, RNA, genetic code, genotype, phenotype, transcription, translation, human karyotype, sex chromosomes, alleles, loci, allele frequencies, recombination, Mendelian segregation, Hardy Weinberg equilibrium, and reconstruction of phylogenetic trees.

bCourses: Notes and other handouts posted on bCourses before each lecture.

Class sections: ZOOM! R 8-9:30am Tuesdays and Thursdays.

Lectures will be recorded, and links will be available for 1 week (Note: this might change, depending on lecture attendance).

Laboratory sections: Zoom!

Exams: Not cumulative. Note: there will be 2-3 pop-up exams (for extra credit towards the midterm) during the lecture. This will allow us to test the format for the midterm, but also encourage keeping up with the material, and reward lecture attendance.

Midterm: During class time on Oct. 13th. **Final Exam** Wed, Dec 16 • 3:00P - 6:00P

Grading: The computer labs will account for 20% of the final grade. There will be a mid-term exam, which will account for 40% of the final grade. 40% of your grade will be based upon the final examination, which will not be comprehensive, but will cover material since the mid-term.

DSP students: We will be happy to accommodate you, but please make your needs known to your GSI as soon as possible. We need sufficient time to reserve additional rooms and arrange for proctoring.

Lecture	Date	Topic
1	27-Aug	Genomics and the Human Genome
2	1-Sep	The transcriptome 1
3	3-Sep	The transcriptome 2
4	8-Sep	Epigenomics 1
5	10-Sep	Epigenomics 2
6	15-Sep	Tandem repeats
7	17-Sep	Transposable elements 1
8	22-Sep	Transposable elements 2
9	24-Sep	Structural variation
10	29-Sep	Gene Family evolution
11	1-Oct	Sex chromosomes: the Y
12	6-Oct	Sex chromosomes: the X
13	8-Oct	Midterm Review
14	13-Oct	Midterm in class
	15-Oct	Mendel, mutation, and Probability
	20-Oct	No class
15	22-Oct	Pedigrees, testing Mendelism, Recombination
16	27-Oct	Association mapping & GWAS I
17	29-Oct	Quantitative Genetics
18	3-Nov	HWE and Genetic Drift
19	5-Nov	Natural Selection
20	10-Nov	Human genetic history, great apes, and archaic hominins
21	12-Nov	Adaptation
22	17-Nov	Admixture and migration
23	19-Nov	Eugenics and the history of human genetics
24	24-Nov	Human Genetic Disease
25	26-Nov	Thanksgiving
26	1-Dec	Personalized Genomics
27	3-Dec	Final Exam Review
		Final Exam

