IB 164—Human Genetics and Genomics, Fall 2013

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Prerequisites: Bio 1A and 1B + no fear of quantitative material. You are expected to know some basic genetics as presented from Bio 1A, including DNA, RNA, genetic code, genotype, phenotype, transcription, translation, human karyotype. Chapter 1 on Knight's book illustrates many of the basic ideas of genetics using the beta and alpha hemoglobin genes as examples.

Text: *Human Genetic Diversity* by Julian C. Knight—(Optional).
bSpace: notes and other handouts posted on bSpace before each lecture
Laboratory sections: first meeting during the week of Sept. 9th
Exams: Not cumulative
Midterms: in class on Sept. 30 and Oct. 30.
Grading: 100 points for each of the 2 midterms and for the final and 100 points total for the sections
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.

Tentative Lecture Schedule

Lecture	Date	Topic	
1	8/28	Mendelism & pedigrees	MS
2	9/2	Mendelian diseases	DB
3	9/4	DNA sequence data	DB
4	9/9	Recombination	DB
5	9/11	Genomics & the human genome	DB
6	9/16	The transcriptome	DB
7	9/18	Epigenomics	DB
8	9/23	Tandem repeats	DB
9	9/25	Transposable elements	DB
10	9/30	Midterm 1	
11	10/2	Structural variation	DB
12	10/7	Gene Family evolution	DB
13	10/9	Sex chromosomes: the Y	DB
14	10/14	Sex chromosomes: the X	DB
15	10/16	Cancer genomics	DB
16	10/21	Recombination & maps	MS
17	10/23	LOD scores	MS
18	10/28	Linkage mapping	MS
19	10/30	Midterm 2	

20	11/4	Linkage disequilibrium	MS
21	11/6	GWAS	MS
22	11/11	*Veterans Day Holiday*	
23	11/13	HWE & genetic drift	MS
24	11/18	Gene flow	MS
25	11/20	Genetic variation in humans	MS
26	11/25	Archaic humans	MS
	11/27	*Thanksgiving Holiday*	
27	12/2	Natural selection	MS
28	12/4	Adaptation in humans	MS
	12/17	FINAL EXAM 3-6 PM	