

## IB 164—Human Genetics and Genomics

**Instructor: TBD**

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**GSI: TBD**

**Prerequisites:** Bio 1A and 1B + no fear of quantitative material. You are expected to know some basic genetics as presented in Bio 1A, including DNA, RNA, genetic code, genotype, phenotype, transcription, translation, human karyotype.

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

**Laboratory sections:** at Valley Life Sciences 3056. First meeting during the week of August 28<sup>th</sup>.

**Exams:** Not cumulative.

**Midterm:** In class on Oct. 10<sup>th</sup>. Final Exam Thursday, Dec. 14<sup>th</sup>, 7-10pm. Location TBA.

**Grading:** The computer labs will account for 20% of the final grade. There will be a mid-term exam, which will account for 30% of the final grade. 30% of your grade will be based upon the final examination, which will not be comprehensive, but will cover material since the mid-term. The midterms and final are closed book examinations. You can bring no notes, books, calculators, cell phones, or any other electronic communication devices. There will be a research project accounting for 20% of your final grade. On the last day of class, students will turn in electronically a written project paper not to exceed 8 pages of double-spaced text in Times 12 font. Project ideas will be presented to you in the lab section, but you are not limited to these. Ideas for all projects must be approved by the GSI who will ask you to give a short presentation in lab on your chosen topic and all papers will be searched for evidence of plagiarism, which is strictly prohibited. You will receive more instructions in the lab on the project paper.

**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	Lecturer
1	8/24	Mendel, mutation, probability	RN
2	8/29	Pedigrees, testing Mendelism	RN
3	8/31	Recombination & maps	RN
4	9/5	Recombination & maps	RN

5	9/7	Assoc. mapping & GWAS	RN
6	9/12	Quantitative Genetics	RN
7	9/14	HWE and Genetic drift	RN
8	9/19	Human genetic variation	RN
9	9/21	Human genetic history and archaic hominins	RN
10	9/26	Natural selection	RN
11	9/28	Pathogens and the human genome	RN
12	10/3	Adaptation in humans I	RN
13	10/5	Adaptation in humans II	RN
14	10/10	Midterm	
15	10/12	Genomics	KA
16	10/17	The Human Genome	KA
17	10/19	The transcriptome, part 1	KA
18	10/24	The transcriptome, part 2	KA
19	10/26	Epigenomics, part 1	KA
20	10/31	Epigenomics, part 2	KA
21	11/2	Tandem repeats	KA
22	11/7	Transposable elements	KA
23	11/9	Gene family evolution	KA
24	11/14	Sex Chromosomes	KA
25	11/16	Cancer genomics	KA
26	11/21	Human genetic disease	KA
27	11/28	Eugenics	KA
28	11/30	Guest lecture	TBA
	12/14	FINAL EXAM 7-10 PM	