

Term: **Fall 2011**

Course Number: **GENET 292**

Course Title: **Human Cytogenetics**

Course Director: **Dr. Fern Tsien**

Locations: **CSRB 752, 752A, and 659**

Times of Class: **Mon, Fri 2-3:30**

Course Credits: **3**

Course Description: This lecture and laboratory course will focus on human chromosome structure, methodology, and techniques for the visualization of chromosome aberrations. Chromosome abnormalities will be discussed from the clinical and cytogenetic viewpoint. The course will also cover current topics in Cytogenetics, including new methodologies and their use in clinical genetics and research.

Date:	Topic	Location (all in CSRB)
Sep 2	Introduction to cytogenetics	752A
Sep 9	Heterochromatin, euchromatin, and the nucleosome	752A
Sep 12	Chromosome replication, segregation, and the centrosome	752
Sep 16	Numerical Abnormalities	752A
Sep 19	Structural Chromosome Abnormalities	752
Sep 23	Mechanisms of structural Abnormalities	752A
Sep 26	Sex chromosomes, X chromosome inactivation- Homework due	752
Sep 30	Sex chromosome abnormalities	752A
Oct 3	Sample collection, culture, and harvest (Lecture)	752
Oct 7	Banding Techniques (Lecture)	752A
Oct 10	Harvesting of cells for chromosome analysis (Lab)	659
Oct 14	Slide preparation and solid staining (Lab)	659
Oct 17	Midterm	752
Oct 21	G-banding (Lab)	659
Oct 24	Microscope analysis and diagnosis (Lab)	659
Oct 28	Karyotype Analysis and nomenclature	752A
Oct 31	Microdeletion syndromes	752
Nov 4	Molecular cytogenetics methods-FISH, CGH, SKY, etc.	752A
Nov 7	Cytogenetics of Cancer (Leukemias)	752
Nov 11	Cytogenetics of Cancer (Solid Tumors)	752A
Nov 14	No class- Report due	752
Nov 18	Chromosome Breakage and Instability Syndromes	752A
Nov 21	Epigenetic mechanisms and Genomic Imprinting disorders	752
Nov 25	Model organisms- fruitfly, mouse, primates	752A
Dec 2	Final exam	752A

Midterm exam 30%

Final exam 30%

Report 30%

Class participation/attendance/homework: 10%