

EPIGENETICS, GENET 234, 3 CREDITS

Course director: Fern Tsien, Ph.D.

CSRB 752A, Wednesdays and Fridays, 2:00-3:30pm (unless otherwise noted)

Date	Topic	Instructor
Jan 18	Chromatin	Tsien
Jan 20	DNA methylation, DNA methyltransferases	Tsien
Jan 27	Methyl binding proteins and histone acetylases and deacetylases in chromatin remodeling	Tsien
Feb 1	Histone methyltransferase (HMT) activity and control of DNA methylation	Tsien
Feb 8	Polycomb group (PcG) proteins and HMT	Tsien
Feb 10	CTCF as an imprint regulator	Tsien
Feb 15	Genomic imprinting in mammals, parent-of-origin effects -X chromosome	Tsien
Feb 17	Epigenetics of non-coding RNA, miRNA	Judy Crabtree, PhD, Assistant Professor, Department of Genetics, LSUHSC
Feb 29	Diseases associated with abnormal imprinting (Beckwith- Wiedemann and Prader-Willi/ Angelman syndromes)	Tsien
March 2	Epigenetic metabolism, diet, and aging	Tsien
March 7	Midterm exam	Tsien
March 9 (11am-12noon, 5th floor conference room)	Epigenetics of obesity and type II diabetes Department of Genetics Seminar	Robert A. Koza, Ph.D. , Assistant Professor Department of Molecular Genetics Epigenetics & Obesity Laboratory Pennington Biomedical Research Center Baton Rouge, LA
March 14	DNA methylation and diseases of repeat expansion (Fragile X) and contraction (Fascioscapulohumeral muscular dystrophy, FSHD)	Tsien
March 16	Epigenetics and control of longevity	Tsien
March 21	Epigenetics and cancer 1 -global and region-specific changes in DNA methylation, effects on transcription and chromatin structure	Tsien
March 23	Epigenetics and cancer 2- treatment -Report due	Tsien
March 27	Epigenetics of chromosome instability syndromes – Immunodeficiency, centromeric instability, facial anomalies syndrome (ICF)	Tsien
March 30	Prions	Tsien
April 11	Embryonic stem cells, pluripotency, and differentiation	Tsien
April 13	Methods in epigenetics -Analyzing DNA methylation patterns, chromatin structure, and histone modification patterns	Tsien
April 18	Final exam	Tsien
April 20	Student presentations	
April 25	Student presentations	

Midterm exam: 20%

Final exam: 20%

Report: 30%

Final presentation: 30%