Regulation of Eukaryotic Gene Expression (BIMM 112)

James T. Kadonaga – Winter 2022

Tues. & Thurs. 3:30 to 4:50 pm; Peterson Hall room 110

Note: this syllabus may be updated in the future. Lecture material will be presented in the indicated order, but may not coincide perfectly with the indicated dates. Specific details about exams, grading, and course policy are discussed in Lecture 1.

<u>Date</u>	<u>Topic</u>
Jan. 4	1. Introduction and Overview; Scientific Knowledge; Fundamentals of Chromatin Structure
Jan. 6	2. Covalent Modifications of the Histones
Jan. 11	3. Introduction to Genomics; Analysis of the ChIP Assay
Jan. 13	4. Modern Approaches to the Analysis of Gene Expression
Jan. 18	 Nucleosome Positioning; Linker Histones; Histone Variants; HMG Proteins
Jan. 20	6. CpG Methylation; Heterochromatin
Jan. 25	7. Chromatin Assembly and Analysis
Jan. 27	8. Discussion: Chromatin Paper
Feb. 1	9. Midterm #1
Feb. 3	10. Chromatin Remodeling Factors
Feb. 8	11. The RNA Polymerase II Transcriptional Machinery Simple Kinetics and Thermodynamics
Feb. 10	12. The RNA Polymerase II Core Promoter
Feb. 15	13. Sequence-specific DNA-binding Transcription Factors
Feb. 17	14. Transcriptional Enhancers
Feb. 22	15. Synthesis and Review of Concepts
Feb. 24	16. Discussion: Transcription Paper
Mar. 1	17. Midterm #2
Mar. 3	 Computational Analysis of Genome-wide Data (*Lecture by Prof. Christopher Benner, UCSD School of Medicine)
Mar. 8	19. Role of Nuclear Structure and Chromatin in the Regulation of Gene Activity. (*Lecture by Prof. Bing Ren, UCSD School of Medicine)
Mar. 10	20. Future Perspectives

Mar. 15 (Tuesday) 3:00 to 6:00 pm Final Exam (Peterson 110)