

BMB 801: Introduction to Molecular Biology Fall 2017 9:10-10:00 MWF 101 BCH

Any of these three texts provide suitable background: *Molecular Biology of the Gene, Watson et al.*
Genes (Lewin; or other authors in the latest edition)
Molecular Biology of the Cell, Alberts et al.

Supplementary texts recommended for students with a weak background in biochemistry:
Principles of Biochemistry, Lehninger Biochemistry, Stryer; Biochemistry, Voet&Voet

Date	Instructor	
1. August 30 2. September 1 3. September 6 4. September 8	Henry Henry Henry Henry	<u>DNA structure and chromatin</u> 1. DNA Structure 2. Chromosomes & Chromatin Structure 3. Chromatin Modification & Remodeling I 4. Chromatin Modification & Remodeling II
5. September 11 6. September 13 7. September 15 8. September 18 9. September 20 10. September 22 11. September 25	Henry Henry Henry Henry Henry Henry Henry	<u>DNA metabolism</u> 5. DNA Topology 6. DNA Topoisomerases 7. DNA Modification – Methylation & Demethylation 8. DNA Modification – Restriction and Ligation 9. DNA Damage & Repair – Base Excision Repair 10. DNA Damage & Repair - Nucleotide Excision and Mismatch Repair 11. DNA Replication I – Introduction
12. September 27 13. September 29 14. October 2 15. October 4 16. October 6 17. October 9	Henry Henry Henry Henry Henry Henry	<u>DNA replication</u> 12. DNA Replication II – Origin Recognition & Unwinding 13. DNA Replication III - Clamp Loading and Primases 14. DNA Replication IV - DNA polymerases 15. DNA Replication V – Eukaryotic Replication (Proteins, SV40 model) 16. DNA Replication VI – Regulation (Cell cycle) 17. Telomeres and Centromeres
October 10 18. October 11 19. October 13 20. October 16 21. October 18 22. October 20 23. October 23	Henry Henry Arnosti Arnosti Arnosti Arnosti	<u>Midterm 1 (lectures 1-16) 7:30-9:00 p.m. (evening exam)</u> 18. Mitochondrial DNA Replication 19. DNA Analysis and Methods 20. CRISPR 21. Reverse transcriptase and retroviruses 22. Recombination 23. Recombination at replication forks; specialized recombination
24. October 24* 25. October 25 26. October 27 27. October 30 28. November 1 29. November 3 30. November 6 31. November 8 32. November 10 33. November 13	Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti	<u>Gene Expression</u> 24. Overview of transcription, methods, polymerase 25. Bacterial initiation and elongation, sigma factors 26. The <i>lac</i> operon; a half-century of innovation and discovery 27. Termination and attenuation 28. Transcription in eukaryotes vs. archaea 29. RNA polymerase II basal factors and initiation, RNA polymerases I and III 30. Transcriptional activation and repression – basic pathways 31. Transcriptional activation and repression – complex systems 32. Genome-wide and developmental control of transcription 33. Capping and polyadenylation
November 14 34. November 15 35. November 17 36. November 20 37. November 27 38. November 28* 39. November 29 40. December 1 41. December 4 42. December 6 43. December 8	Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti Arnosti	<u>Midterm 2 (lectures 17-32) 7:30-9:00 p.m. (evening exam)</u> 34. pre-mRNA splicing 35. Regulation of splicing 36. RNA editing 37. mRNA degradation 38. miRNA, piRNA, and RNAi 39. Translation 40. The ribosome; structure and function 41. Alternative codes 42. 'omic analysis of translation 43. Translational regulation
December 14 (*evening classes)		<u>Final Exam (cumulative) 7:45-9:45 a.m. (NOTE THIS IS A MORNING EXAM!)</u> (*evening classes: 6 p.m. – 7 p.m. Biochemistry 101)
		<i>recitations/review Tuesdays, 5-6 p.m. Biochemistry 101</i>