

BMB 801 Introduction to Molecular Biology Fall 2004 9:10-10:00 MWF 1415 BPS

Dates	Instructor	Lecture Topic, and pages in Molecular Biology of the Gene, Vth Edition
1. August 30 th	Kaguni	<u>DNA structure and topology</u> 1. DNA structure (Ch. 2, p. 19-36; Ch.6, p. 97-111)
2. September 1 st	Kaguni	2. Chromosomes: Basic concepts (Ch. 7, p. 129-150); Structure (p. 151-180, Felsenfeld)
3. September 3 rd	Kaguni	3. DNA topology and topoisomerases (p. 112-122)
4. September 8 th	Kaguni	4. DNA topoisomerases cont'd (Wang)
5. September 10 th	Kaguni	<u>DNA modifying enzymes</u> 5. Restriction endonucleases, polynucleotide kinase, endo/exonucleases, other DNA modifying enzymes (p. 647-652)
6. September 13 th	Kaguni	6. DNA ligase (MacNeill)
7. September 15 th	Kaguni	<u>DNA Replication</u> (Ch. 4) 7. Overview, basic rules and mechanics
8. September 17 th	Kaguni	8. DNA primases (Ellenberger-1)
9. September 20 th	Kaguni	9. DNA helicases (McKay, Ellenberger-2)
10. September 22 nd	Kaguni	10. DNA polymerases (Steitz, Ellenberger-3)
11. September 24 th	Kaguni	11. DNA polymerase clamps and clamp loaders (McHenry, Kuriyan)
12. September 27 th	Kaguni	<u>Bacterial replication</u> 12. Proteins at the replication fork (Baker)
13. September 29 th	Kaguni	13. Regulation of replication
14. October 1 st	Kaguni	<u>Eukaryotic replication</u> 14. Proteins, the SV40 virus model (Baker, Bambara)
15. October 4 th	Kaguni	15. Mitochondrial DNA replication
16. October 6 th	Kuo	16. Yeast DNA replication: origins and regulation
<u>October 7th</u>		<u>Midterm 1 (lectures 1-15) 7:00-8:30 p.m.</u>
17. October 8 th	Kuo	17. Telomeres and centromeres OR Transposable elements
18. October 11 th	Arnosti	18. Replication of retroviruses p. 320-326
19. October 13 th	Arnosti	19. Recombination p. 259-310
20. October 15 th	Arnosti	20. Recombination at replication forks; specialized recombination
<i>(last drop day 10/19)</i>		
21. October 18 th	Arnosti	21. DNA damage and repair p. 235-258
22. October 20 th	Arnosti	22. Overview of transcription, methods, polymerase p. 347-363
23. October 22 nd	Arnosti	23. Prokaryotic and initiation and elongation, sigma factors
24. October 25 th	Arnosti	24. The <i>lac</i> operon p. p. 480-527
25. October 27 th	Arnosti	25. Termination and attenuation
26. October 29 th	Arnosti	26. Transcription in eukaryotes p, 363-377
27. November 1 st	Arnosti	27. RNA polymerase II basal factors and initiation
28. November 3 rd	Arnosti	28. RNA polymerases I and III
29. November 5 th	Arnosti	29 Activators and repressors p. 529-573
30. November 8 th	Arnosti	30. Chromatin and global regulation
31. November 10 th	Arnosti	31. Developmentally regulated complex loci p. 575-611
32. November 12 th	Arnosti	32. Capping and polyadenylation p. 371-374
33. November 15 th	Arnosti	33. pre-mRNA splicing p. 379-402
<u>November 16th</u>		<u>Midterm 2 (lectures 16-31) 7:00-8:30 p.m.</u>
34. November 17 th	Arnosti	34. Regulation of splicing p. 563-565
35. November 19 th	Arnosti	35. Catalytic RNA p. 387-391
36. November 22 nd	Arnosti	36. Catalytic RNA
37. November 24 th	Arnosti	37. RNA editing p. 404-410
38. November 29 th	Arnosti	38. mRNA degradation p. 452-459
39. December 1 st	Arnosti	39. Translation p. 411-452
40. December 3 rd	Arnosti	40. The ribosome; structure and function
41. December 6 th	Arnosti	41. Alternative codes
42. December 8 th	Arnosti	42. Translational regulation p. 461-478
43. December 10 th	Arnosti	43. Catch up
<u>Dec. 17^h</u>		<u>Final Exam (cumulative, lectures 16-43) 7:45-9:45 a.m.</u>