

MOLECULAR BIOLOGY BIOL 312

Spring 2016 syllabus

IMPORTANT DATES

W 1/13	Last day for drop/add
M 1/18	M. L. King Holiday, no class
Sunday 1/31	Home test 1 due in Dropbox
Sunday 2/28	Home test 2 due in Dropbox
3/7 to 3/13	Spring break, no class
F 3/18	Last day for W
Sunday 4/03	Home test 3 due in Dropbox
Th 4/21	Last day of class. This is a “Monday”, so we will have class
W 4/27	Final exam 12-3 pm

READING

Chapters and page numbers are based on the seventh edition of Molecular Biology of the gene by Watson et al. Ebook available. If you have an earlier version of the book let me know and I can find the equivalence.

SYLLABUS

Introduction, class information

READING

Part 1: Chemistry and Macromolecules

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|-----------------------------------|-----------|
| 1. Chemical bonds: | chapter 3 |
| 2. Protein structure and function | chapter 6 |
| 3. DNA structure | chapter 4 |
| 4. DNA-protein interactions | chapter 6 |

Part 2: Maintenance and change in DNA sequences

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| 5. DNA replication | chapter 9 |
| 6. DNA mutation and DNA repair | chapter 10 |
| 7. Homologous recombination | chapter 11 |

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| 8. Transposition | chapter 12 |
| 9. Genome structure: conservation and changepter | chapter 8 |

Topic 3: Using DNA information-transcription and translation

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| 10. Central dogma, what is a gene | |
| 11. RNA structure | chapter 5 |
| 12. Transcription: general machinery | chapter 13 |
| 13. Splicing and other RNA modifications | chapter 14 |
| 14. Genetic code and Translation | chapters 15 and 16 |

Topic 4 Regulation of gene expression

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| 15. Regulation of transcription: basic concepts | chapter 18-1 |
| 16. Regulation of gene expression in prokaryotes | chapter 18 |
| 17. Regulation of gene expression in eukaryotes- | chapter 19 |
| 18. Chromatin organization | chapter 8 |
| 19. Regulation of gene transcription by chromatin | chapter 8 and 19 |
| 20. Regulation by RNA interference | chapter 20 |
| 21. Combinatorial regulation of gene transcription | chapter 19 |
| 22. Regulation of RNA processing and splicing | chapter 14 and 20 |
| 23. Regulation of translation | chapter 15 |