

MCDB1A Lecture Schedule, Fall 2004

All assigned readings are from our text: Purves, Sadava, Orians, Heller, Life, The Science of Biology, Seventh Edition

Introduction to Biochemistry and Molecular Biology

September 24 –October 15

Dr. Stuart Feinstein

Office Hours: Immediately after lecture on Mon, Tues, Wed

Location: in front of Campbell Hall

E-mail: feinstei@lifesci.ucsb.edu

TOPIC	Reading in Text [chapter (pages)]
Sept 24 Course Organization/Biochemical Principles	1(1-14); 2(15-34)
Sept 27 Biochemical Principles/ Introduction to Macromolecules/ Lipids	3 (35-38;50-54) 5 (87-91)
Sept 28 Macromolecules: Lipids and Polysaccharides	3(45-50)
Sept 29 Macromolecules: Polysaccharides and Proteins	3 (38-45)
Oct 1 Macromolecules: Proteins and Nucleic Acids	3 (54-60)
Oct 4 The Central Dogma: DNA as Genetic Material	11 (213-220)
Oct 5 The Great Central Dogma: DNA Replication	11 (220-232)
Oct 6 The Great Central Dogma: Transcription and Translation	12 (233-256)
Oct 8 The Central Dogma: Translation and Mutations	12 (233-256)
Oct 11 The Central Dogma: Post-Translational Modifications and Alternative RNA Splicing	12 (233-256) 14(285-290)
Oct 12 Energy, Enzymes and Metabolism	6 (106-124)
Oct 13 Chemical Pathways that Harvest Chemical Energy	7 (125-144)
Oct 15 Chemical Pathways that Harvest Chemical Energy	7 (125-144)

Cell Structure, Function and Early Development

October 18 –November 9

Dr. Leslie Wilson

Office Hours: Mon, Wed 3:00 - 4:00 PM or by appointment. Bio II, room 3119

Telephone: 893-2819; email: wilson@lifesci.ucsb.edu

Lecture Schedule (approximate)- Materials to be Covered

Oct 18, 19 cells; cell theory, cell size, eukaryotes and prokaryotes; cell organelles

(Oct. 20 Midterm 1, Material covered by Dr. Feinstein)

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Oct 22,25,26 the cytoskeleton; membranes and the endomembrane system,
membrane
functions (endocytosis, exocytosis, secretion)

Oct 27 extracellular matrix, cell junctions, chromosomes; chromatin

Oct 29, cell cycle, checkpoints, cell division, mitosis and cytokinesis
Nov 1,2

Nov 3, meiosis
Nov 5 gametogenesis and fertilization

Nov 8,9 early development

Nov 12: Midterm 2 Cell and Developmental Biology (Material covered by Dr. Wilson)

	Assigned Reading	
Chapter		Assigned Pages
4	The Organization of Cells	61-86
5	Cellular Membranes	87-105
9	Chromosomes, Cell Cycle, Cell Division	164-186
15	Intercellular Communication	313-315
27	General Biology of the Prokaryotes	526-529
43	Animal Reproduction	820-831
20	Animal Development	408-420

Genetics

November 10 – December 3

Dr. Rolf Christoffersen ,

Office: Bio II rm 2115F

Office Hours: MW 11:00 - 12:00 or by Appointment

Phone: 893-3599

Email: christof@lifesci.ucsb.edu

Before you try to understand the science of genetics, it is critical that you have a thorough understanding of the behavior of homologous chromosomes in meiosis

and gametogenesis. If you need to, please review the material from chapter 9. Remember to pay close attention to the behavior of the chromosomes in meiosis. We have prepared a web multimedia presentation to help you learn the relationship to between meiosis and Mendelian genetics. There is a link to this presentation in the genetics portion of the course web.

- **Meiosis and Sexual life cycles (REVIEW) Chpt 9**
 - Meiosis: A Pair of Nuclear Divisions
 - Meiotic Errors
- **Genetics: Mendel and Beyond Chpt 10**
 - Mendel's Experiments and the Laws of Inheritance
 - Alleles and Their Interactions
 - Gene Interactions
 - Genes and Chromosomes
 - Sex Determination and Sex-Linked Inheritance
- **Genetics of Viruses and Prokaryotes Chpt 13**
 - .Virus life cycles (pg 257-263)
 - -Bacteriophages
 - -Influenza virus
 - .Plasmids (pg 267-268)
 - .Regulation of Gene Expression in Prokaryotes (pg 269-274)
 - -lac operon
 - -trp operon
 - CRP-cAMP complex
 - .Prokarotic Genomes (pg 275-277)
- **Eukaryotic Genome and Expression Chpt 14**
 - The Eukaryotic Genome
 - RNA Processing
 - The Structures of Protein-Coding Genes
 - Gene Regulation of Eukaryotic Genes
 - Chromatin Structure
 - Barr Bodies
- **Recombinant DNA and Biotechnology Chpt 16**
 - Cleaving and Rejoining DNA
 - Cloning Genes
 - Biotechnology: Applications of DNA Manipulation
- **Molecular Biology and Medicine Chpt 17**
 - Potein as Phenotype
 - Mutations and Human Diseases
 - Detecting Human Genetic Variations
 - Treating Genetic Diseases