MCDB 108C Syllabus

Biochemistry of complex lipids, amino acid metabolism, nucleotide metabolism and nucleic acids

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Office hours: Wednesdays 2–3 PM or by appointment in LSB 3109

Lectures: Monday, Wednesday and Friday 1:00 – 1:50 PM in the Rathmann Auditorium (LSB 1001).

Teaching Assistants: Esther Taxon, email: esther.taxon@lifesci.ucsb.edu, and Elijah Spina, email: Elijah.spina@lifesci.ucsb.edu

Textbook: Lehninger Principles of Biochemistry (5th Edition, 2008)

Your course grade will be based on two midterm exams and a comprehensive final examination. Each midterm exam will be worth 25% and the final exam will be 50% of your grade. Grading will be determined by a normalized curve of total exam points. No makeup exams will be given – if you find that you cannot take an exam due to illness or other serious issue, you must contact me **before** the exam is given to avoid receiving a zero score. If you have questions regarding the grading of your exam, you will need to attach an explanation (of why you believe you deserve extra points) to your exam and return it to me within one week of the date the graded exams were returned.

There are no Honors sections or contracts for MCDB 108C (sorry!). The syllabus lists assigned textbook chapters for each week's Discussion section. Additionally, discussion problems will be distributed via GauchoSpace with sample questions posed in the format typical of my Midterm and Final exams. MCDB 108C will focus on the metabolic synthesis and degradation of lipids, amino acids, and nucleic acids.

Course Outline (subject to change)

Week 1:
Reading: Chapter 19 (sections 19.6 to 19.9), Chapter 20 (section 20.1)

Monday, April 1:Course Overview and Photosynthetic Light Reactions (19.6-19.7)
Wednesday, April 3: Photosynthesis continued (19.8-19.9)
Friday, April 5: Photosynthetic Dark Reactions: the Calvin Cycle (20.1)

Week 2:
Reading: Chapter 20 (sections 20.1 to 20.2), Chapter 10 (sections 10.1-10.2), Chapter 21 (sections 21.1-21.2)
Monday, April 8: Calvin Cycle (cont'd) and C4 and CAM pathways (20.1-20.2)
Wednesday, April 10: Structure and Biochemistry of Fatty Acids and Phospholipids (10.1-10.2)
Friday, April 12: Fatty Acid Biosynthesis (21.1-21.2)

Week 3:
Reading:Chapter 21 (sections 21.1 to 21.4)
Monday, April 15: Synthesis of Complex Lipids (21.1-21.3)
Wednesday, April 17: Eicosanoids and Cholesterol (21.1, 21.4)
Friday, April 19: Cholesterol (cont'd) and Steroid Hormones (21.4)

Week 4:
Reading: Chapter 11 (sections 11.1-11.2)
Monday, April 22: General Properties of Biological Membranes (11.1-11.2)
Wednesday, April 24: Midterm Exam #1
Friday, April 26: Membrane Proteins (11.1)

Week 5:
Reading: Chapter 11 (section 11.3), Chapter 22 (sections 22.1 to 22.3)
Monday, April 29: Membrane Transport (11.3)
Wednesday, May 1: Nitrogen Fixation and Assimilation (22.1)
Friday, May 3: Synthesis of Aspartate, Pyruvate, and Aromatic Amino Acids (22.2-22.3)

Week 6:
Reading: Chapter 18 (sections 18.1 to 18.3), Chapter 22 (section 22.4)
Monday, May 6: Nitrogen Excretion and the Urea Cycle (18.1-18.2)
Wednesday, May 8: Amino Acid Catabolism (18.3)
Friday, May 10: *de novo* Purine Synthesis (22.4)

Week 7:
Reading: Chapter 22 (section 22.4)
Monday, May 13: Pyrimidine Synthesis (22.4)
Wednesday, May 15: Nucleotide Degradation and Salvage Pathways (22.4)

Friday, May 17: Deoxyribonucleotide Synthesis (22.4)

Week 8:
Reading: Chapter 26 (section 26.1 to 26.2)
Monday, May 20: Midterm Exam #2
Wednesday, May 22: Transcription of RNA (26.1)
Friday, May 24: mRNA Processing (26.2)

Week 9:
Reading: Chapter 26 (section 26.2), Chapter 27 (sections 27.1 to 27.2)
Monday, May 27: Memorial Day Holiday
Wednesday, May 29: Splicing (26.2)
Friday, May 31: The Ribosome and Protein Synthesis (27.1-27.2)

Week 10:
Reading: Chapter 27 (section 27.2 to 27.3)
Monday, June 3: Protein Synthesis (continued) (27.2)
Wednesday, June 5: Protein Localization and Degradation (27.3)
Friday, June 7: TBD

COMPREHENSIVE FINAL EXAM:
WEDNESDAY, JUNE 12, 2011
4:00 – 7:00 PM
Rathmann Auditorium (LSB 1001)