Grande Prairie Regional College

Dept. of Science & Technology

BC 2050

INTRODUCTORY BIOCHEMISTRY II

Instructor
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Description: BC 2050 is a continuation from BC 2030 and includes material on the chemistry and metabolism of lipids, amino acids and nucleotides; structure and assembly of membranes; transport across membranes; the molecular biology of nucleic acids.

Pre-requisites: BC 2030

Transferability: University of Alberta - BIOCH 205
University of Calgary - Senior BCEM
University of Lethbridge - CHEM 3320

Text-book: "Biochemistry" (2nd Edition)
Donald Voet and Judith G. Voet
John Wiley & Sons Inc. Publishers 1995

Evaluation:

Mid-term Exam I	25%
Mid-term Exam II	25%
Final Exam	50%

Assignments: To aid preparation for exams, questions and problem sets may be assigned to students throughout the course. These will not be a part of the overall course evaluation, but students are advised to complete them.

BC 2030 - Topic Outline

Lipids and Membranes	
1	Structure and Properties of fatty acids
2	Lipid catabolism; mobilization of triacylglycerols; β-oxidation
3	Biosynthesis of fatty acids and triacylglycerols
4	Regulation and integration of fatty acid metabolism
5	Phosphoglycerides; sphingolipids; steroids; eicosanoids
6	Structure and assembly of membranes
7	Transport across membranes
Amino Acid and Nucleotide Metabolism	
8	Catabolism of amino acids; transamination; urea cycle
9	Inborn errors of amino acid metabolism
10	Biosynthesis of amino acids; fixation of nitrogen; regulation
11	Structure and biosynthesis of nucleotides
12	Catabolism of purines and pyrimidines
Nucleic Acids and Protein Biosynthesis	
13	Genetic definitions and terminology; "Central Dogma"
14	Review of nucleotides; structure; nomenclature / abbreviations
15	Structure of DNA and RNA; properties of nucleates
16	Replication of DNA; components and mechanism; DNA polymerases; reverse transcriptase; mutations; repair
17	Eucaryotic chromosomes; nucleosome / chromatin structure; introns and exons
18	RNA transcription; components and mechanism; RNA polymerase; bacterial operon; eucaryotic gene expression
19	Components of translation; ribosomes; tRNA; mRNA
20	The genetic code
21	Translation; mechanisms of protein synthesis; regulation
22	DNA sequence determination; polymerase chain reaction; genetic engineering