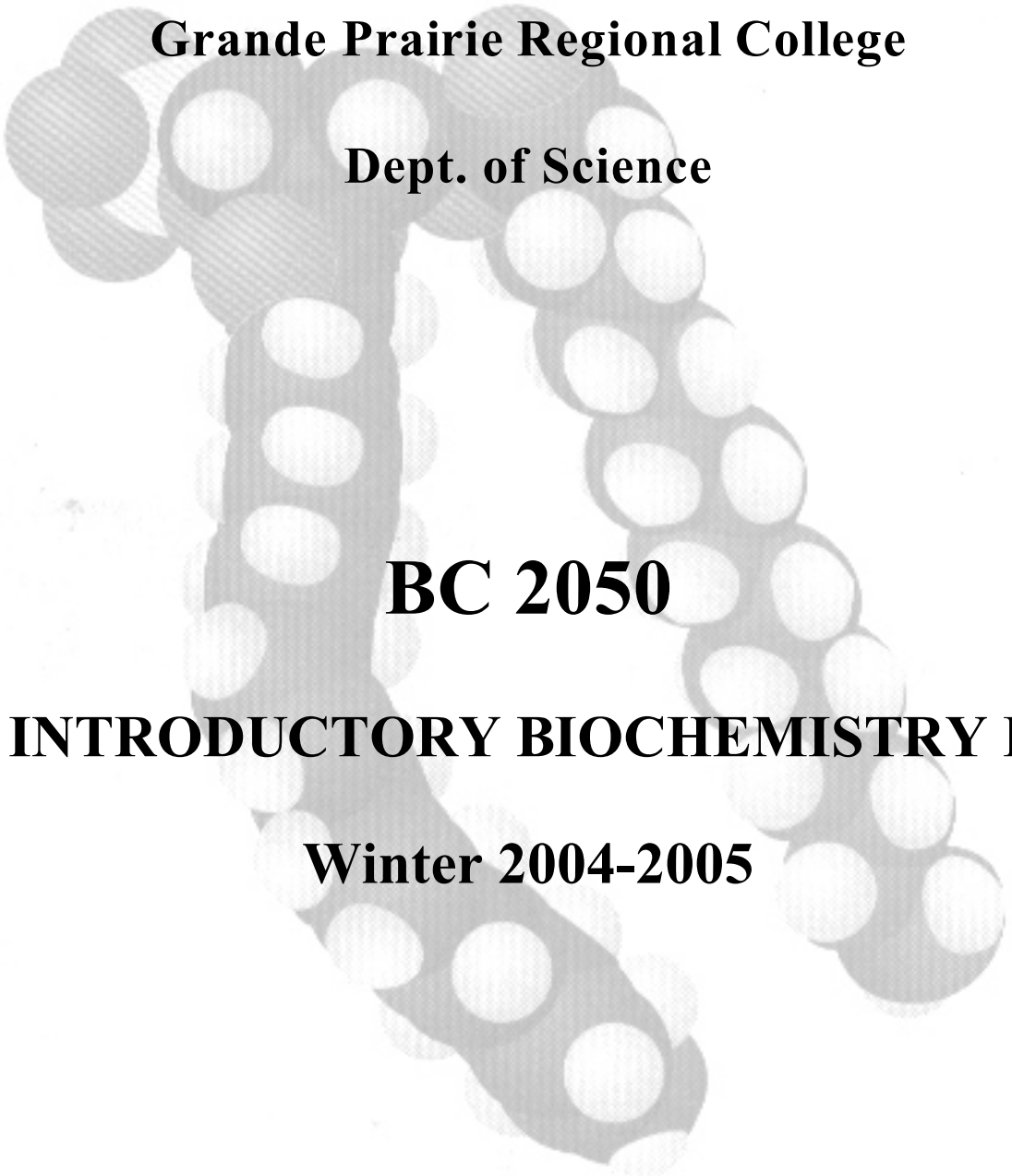

Grande Prairie Regional College

Dept. of Science

BC 2050

INTRODUCTORY BIOCHEMISTRY II

Winter 2004-2005

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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; protein synthesis.

Pre-requisites: BC 2030

Schedule: Tuesday & Thursday 1300-1420 hrs.

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

Text-book: ***"Fundamentals of Biochemistry"*** (1st Edition)
Donald Voet, Judith G. Voet and Charlotte W. Pratt
John Wiley & Sons Inc. Publishers 1999

Other Resources: ***"Biochemistry"***
Donald Voet and Judith G. Voet
John Wiley & Sons Inc. Publishers 1995
This book is on reserve in the library and may be useful when completing assignments.

GPRC - BC 2050 Web-page
http://www.gprc.ab.ca/academic/biology/bc2050nf.htm

University of Alberta - Biochemistry 205 Web-page
http://www.biochem.ualberta.ca/Courses/Bioch205.html

Evaluation:

Mid-term Exam I	25%
Mid-term Exam II	30%
Final Exam	45%

Only the Final Exam will be cumulative

Grading: Grades on the Alpha scale will be assigned only after the course has been completed.

Assignments: To aid preparation for exams, practice questions and problem sets will be assigned to students throughout the course.

BC 2050 - Topic Outline

	TOPIC	readings*
Lipids and Membranes		
1	Structure and Properties of lipids	220-233
2	Lipid catabolism; mobilization of triacylglycerols; β-oxidation	562-580
3	Biosynthesis of fatty acids and triacylglycerols	582-590
4	Regulation and integration of fatty acid metabolism	590-593
5	Phosphoglycerides; sphingolipids; steroids; eicosanoids	593-608, 260-263
6	Structure and assembly of membranes	233-237, 246-260
7	Transport across membranes	264-276
Amino Acid and Nucleotide Metabolism		
8	Catabolism of amino acids; transamination; urea cycle	615-619, 624-640, 620-624
9	Inborn errors of amino acid metabolism	638, 654
10	Biosynthesis of amino acids; fixation of nitrogen; regulation	640-650, 657-661
11	Structure and biosynthesis of nucleotides	42-47, 693-712
12	Catabolism of purines and pyrimidines	712-719
Nucleic Acids and Protein Biosynthesis		
13	Genetic definitions and terminology; “Central Dogma”	53-55, 726, 814
14	Review of nucleotides; structure; nomenclature / abbreviations	42-47
15	Structure of DNA and RNA; properties of nucleates	47-53, 726-746
16	Replication of DNA; components and mechanism; DNA polymerases; reverse transcriptase; mutations; repair	773-792, 798-812
17	Eucaryotic chromosomes; nucleosome / chromatin structure; introns and exons	760-771, 831-837
18	RNA transcription; components and mechanism; RNA polymerase; bacterial operon; eucaryotic gene expression	813-843, 894-898
19	Translation: ribosomes; tRNA; mRNA; the genetic code; mechanisms of protein synthesis; regulation	845-885

**** additional readings may be added during the course***