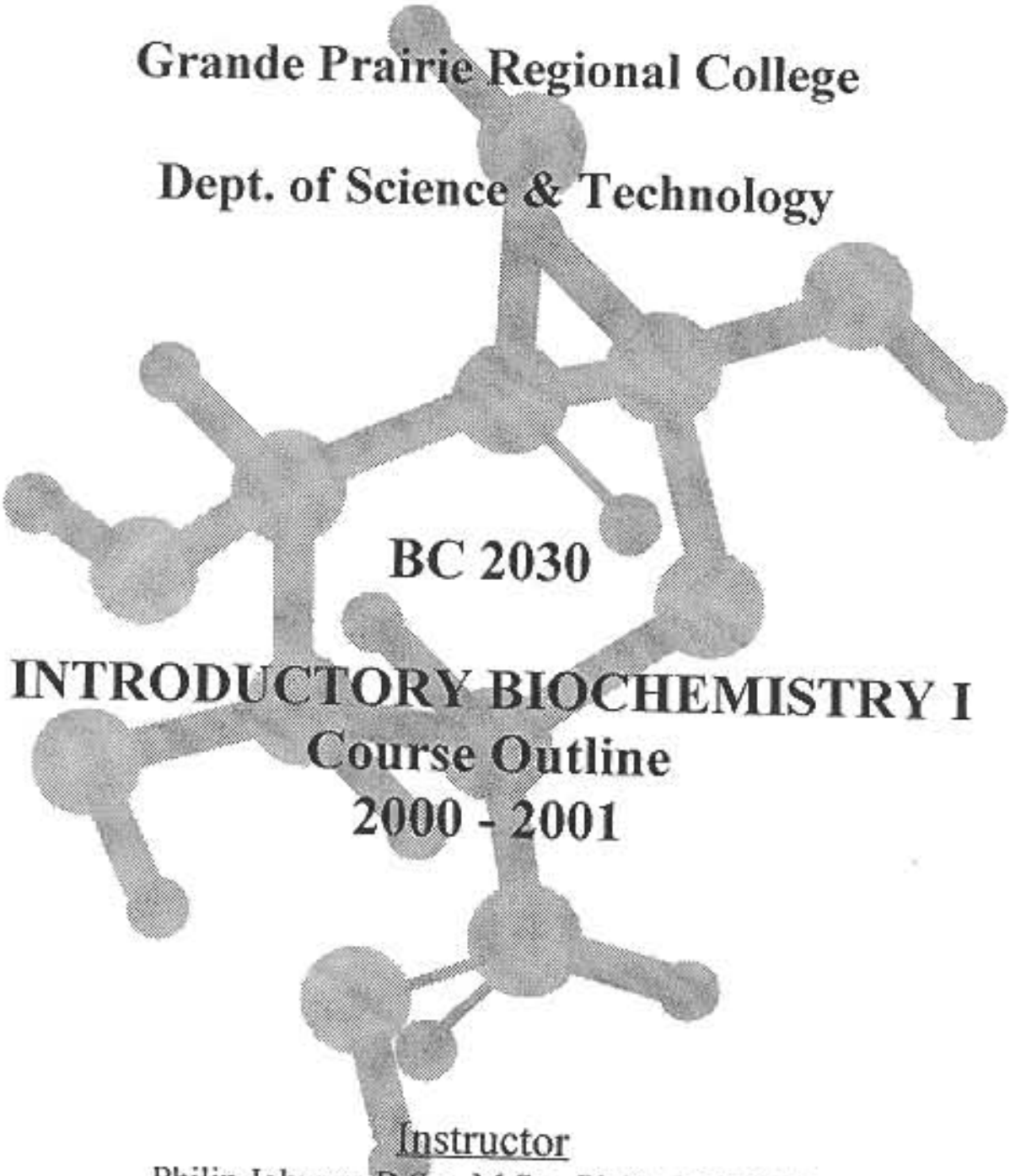
Grande Prairie Regional College

Dept. of Science & Technology



BC 2030

INTRODUCTORY BIOCHEMISTRY I

Course Outline

2000 - 2001

Instructor
Philip Johnson B.Sc., M.Sc., Ph.D., M.S.P.H.
office: J224
phone: 539 2827 e-mail: johnson@gprc.ab.ca

Course Description: This course will include material on the structure and chemistry of the cell, the structure and functions of amino-acids and proteins, enzyme kinetics; chemistry of carbohydrates; intermediary metabolism

Pre-requisites: Chemistry 1010
Chemistry 1610 or Chemistry 2610
Chemistry 1630 or Chemistry 2630

Text-book: "Fundamentals of Biochemistry" (1999)
Donald Voet, Judith G. Voet and Charlotte W. Pratt
John Wiley & Sons Inc. Publishers 1995

Other resourses: The BC 2030 web-page is located at:
http://www.gprc.ab.ca/courses_and_programs/biology/bc2030nf.html
This site contains links to other useful web-pages, including the University of Alberta site for BIOCH 203.

Lectures: Wednesday and Friday 1130 - 1250 hrs
J 229

Evaluation:

Assignments	10%
Mid-term Exam I	25%
Mid-term Exam II	25%
Final Exam	40%

Assignments: To aid preparation for exams, questions and problem sets will be assigned to students throughout the course. These must be completed and handed in at the time specified. Late assignments will not be marked.

BC 2030 - Lecture Schedule

Topic	Reading
Introduction to BC 2030	
Water, Acids and Bases	Ch. 2: 22-38
Amino acids	Ch. 4: 77-91
Protein Purification	Ch. 5: 93-107
Molecular Weight Determination	
Primary Structure of Proteins	Ch. 5: 107-114
3D Structure of Proteins	Ch. 6: 124-148
Protein folding	Ch. 6: 148-157
MID-TERM EXAM I	
Protein Structure and Function	Ch. 7: 161-180
Enzymes and Enzyme Kinetics	Ch. 11: 281-290, Ch. 1: 13-20
Enzymes as Catalysts	Ch. 12: 323-335
Enzyme Regulation	Ch. 12: 335-347
Enzymatic Mechanisms	Ch. 11: 290-298, 307-316
Introduction to metabolism	Ch. 13: 355-357, 361-369
Carbohydrate Chemistry	Ch. 8: 195-201, 203-204, 207-210
Glycolysis	Ch. 14: 383-401, 406-416
MID-TERM EXAM II	
Fates of Pyruvate	Ch. 14: 401-406, Ch. 16: 470-475
Citric Acid Cycle	Ch. 16: 467-470, 475-488
Redox Reactions / Mitochondria	Ch. 13: 370-374, Ch. 17: 493-494
Electron Transport	Ch. 17: 498-511
Oxidative Phosphorylation / Shuttles	Ch. 17: 494-498, 511-522
Pentose Phosphate Pathway	Ch. 14: 417-423
Gluconeogenesis	Ch. 15: 452-459
Glyoxylate Cycle	Ch. 16: 488-490
Glycogen Metabolism	Ch. 15: 427-440
Hormonal Control	Ch. 15: 440-452, Ch. 21: 664-671, 674-677
Metabolic Integration	Ch. 21: 663-671