Grande Prairie Regional College

Dept. of Science & Technology

BC 2030

INTRODUCTORY BIOCHEMISTRY I

Instructor

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

Lectures: M W F 1400 - 1450 hrs
D208

Evaluation:

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

Assignments: To aid preparation for exams, questions and problem sets will 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 - Lecture Schedule

Lecture	Topic	Reading
1	Introduction to the course	Ch. 1: sec 1, 2 & 3
2	Water, Acids and Bases I	Ch. 2
3	Water, Acids and Bases II	
4	Amino acids I	Ch. 4: sec 1
5	Amino acids II	Ch. 4: sec 3
6	Protein purification I	Ch. 5: sec 1 & 2
7	Protein purification II	
	chromatography	Ch 5: sec 3a, 3c & 3d
	electrophoresis	Ch.5: sec 4b & 4d
8	Molecular weight determination	Ch. 5: sec 4c & 3c
9	Primary structure of proteins I	Ch. 6: sec 1a - 1d
10	Primary structure of proteins II	Ch. 6: sec 1e - 1i
11	3D structure of proteins	Ch. 7: sec 4, 1, 3b, 5a
12	Protein folding	Ch. 8: sec 1a - 1c
13	Mid-term I	
14	Protein structure and function I	Ch. 9: sec 1 & 2
15	Protein structure and function II	Ch. 9: sec 2 & 3
16	Enzymes	Ch. 12: sec 1,2,3 & 5
17	Energy and reactions	Ch. 3: sec 3 & 4
18	Enzymes as catalysts I	Ch. 14: sec 1 & 3
19	Enzymes as catalysts II	Ch. 14: sec 3
20	Enzyme regulation	Ch. 9: sec 4
21	Introduction to metabolism	Ch. 15: sec 1 & 4
22	Energy changes in reactions	Ch. 3
		Ch. 15: sec 5 & 6
23	Carbohydrates	Ch. 10: sec 1 & 2b-d
24	Glycolysis I	Ch. 16: sec 1 & 2
25	Glycolysis II	Ch. 16: sec 3
26	Glycolysis III	Ch. 16: sec 4b & 5
27	Mid-term II	
28	Glycogen metabolism I	Ch. 17: sec 1 & 2
29	Glycogen metabolism II	Ch. 17: sec 3
30	Glycogen metabolism III	Ch. 17: sec 4
31	Citric Acid Cycle I	Ch. 19: sec 1 & 2
32	Citric Acid Cycle II	Ch. 19: sec 3, 4 & 5
33	Pentose Phosphate Pathway	Ch. 21: sec 4
34	Oxidative phosphorylation I	Ch. 20: sec 1 & 2
35	Oxidative phosphorylation II	Ch. 20: sec 3 & 4
36	Gluconeogenesis	Ch. 21: sec 1
37	Regulation of carbohygrate metabolism I	Ch. 25: sec 1 & 2
38	Regulation of carbohydrate metabolism II	Ch. 25: sec 3