

Jordan University of Science and Technology
Faculty of Agriculture
Department Of Nutrition and Food Technology
Semester 2007

Course Information	
Course Title	Agricultural Biochemistry
Course Number	NF 351
Prerequisites	BIOL 102, CHEM 217
Course Website	***
Instructor	Dr. Sana Janakat
Office Location	C4L3
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Office Hours	
E-mail	jana@just.edu.jo
Teaching Assistant	***
Course Description	
Chemistry of biological compounds, their structural and functional roles and their compartmentations. Thermodynamics and kinetics of enzymatic activities and intermediary metabolism.	

Text Book	
Title	Biochemistry
Author(s)	Campbell, M.K.
Publisher	Sounders College Publishing, Philadelphia.
Year	1995
Edition	
References	Armstrong, F.B. (1989) Biochemistry, Oxford University Press, Oxford. Campbell, M.K. and Farrell, S.O. (2003) Biochemistry, Thompson Brooks/Cole, Victoria.

Assessment Policy		
Assessment Type	Expected Due Date	Weight%
First Exam		25
Second Exam		25
Final Exam		40
Assignments	***	10

Course Objectives	Weights
Know the general structure and properties for the 20 amino acids	20%
Know the effect of primary structure on higher levels of protein structure	
Know types of enzyme inhibitor	
Study the chemical structure of water-soluble coenzymes	
Study the chemical reactions of water-soluble vitamins	
Study the chemical nature to lipids	
Study the nature of biological membranes	

Know the functions of membranes	
Study fat-soluble vitamins	
Study the types and reactions of saccharides	
Study the function of glycoproteins	
Study the metabolism of glucose and energy consideration of glycolysis	

Teaching & Learning Methods
PowerPoint Overhead projectors

Learning Outcomes: Upon successful completion of this course, students will be able to		
Related Objective(s)		Reference(s)
1	Solve buffer problems and prepare buffers	Chapter 2 and Handouts
1,2	Use titration curves to identify the properties of amino acids	
1-6	Solve enzyme kinetics problems	
3,4	Realize the link between Biochemistry and other disciplines in Agriculture	
5,6	Know the central role of citric acid cycle in metabolism	
6	Study energetics and control of citric acid cycle	
5	Study the role of electron transport in metabolism	
	Study the role of electron transport in metabolism	
	Study of oxidation to phosphorylation	

Course Content		
Week	Topics	Chapter in Text (handouts)
1-2	Water hydrogen bonding and buffers	
3	Amino acids and peptides	
4	The three dimensional structure of proteins	
5-6	The behavior of proteins (enzymes)	
7	Coenzymes	

8-9	Lipids and membranes	
10-11	Carbohydrates	
12	Glycolysis	
13	Further aspects of carbohydrate metabolism	
14	Citric acid cycle	
15	Electron transport and oxidative phosphorylation	
16	Nucleic acids	

Additional Notes	
Assignments	5%
Exams	5%
Cheating	
Attendance	
Workload	
Graded Exams	
Participation	
Projects	****