

Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Shaqlawa Technical College	
Department	Veterinary	
Module Name	Chemistry	
Module Code	CHE504	
Semester	5 th Semester	
Credits	6	
Module type	Prerequisite <input type="checkbox"/>	Core <input type="checkbox"/> Assist. <input checked="" type="checkbox"/>
Weekly hours	4 hr	
Weekly hours (Theory)	(2)hr Class	(81)hr Workload
Weekly hours (Practical)	(2)hr Class	(81)hr Workload
Lecturer (Theory)	Dr. Abdulhadi Omar Qoja	
E-Mail& Mobile NO.	abdulhadiomar@epu.edu.iq	
Lecturer (Practical)	Dr. Abdulhadi Omar Qoja	
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Course Book

Course Description	<ul style="list-style-type: none"> • Science related to the chemistry of the living systems. • Discipline focused on the study of the living systems molecules and how they interact. • Science that combines Chemistry and Biology. • Science that uses the Chemistry's language to explain Biology at molecular level. • Biochemistry is a science whose boundaries now encompass all aspects of biology, from molecules to cells, to organisms, to ecology and to all aspects of health care. • Biochemistry interacts with several disciplines: Cellular Biology, Genetics, Immunology, Microbiology, Pharmacology and Physiology.
Course objectives	This course aims to provide information on the chemical nature of the different classes of nutrients in a bid to increase our understanding and appreciation of their roles in chemical and biological processes concerned with the living process.
Student's obligation	1-The student attention in all theoretical and practical lectures in academic year. 2-Completion of all tests. 3-Attendance in exams. 4-Write or prepare reports.
Required Learning Materials	lecture halls with data show equipment for lecture presentations, white board, overhead projector, posters
Assessment scheme	16% Mid Term (Theory and practical) 4% Quiz 40% Assignment (report, paper, homework, seminar..) 25% final practical 15% final theory
Specific learning outcome:	At the end of this course students should be able to; 1) Chemistry to the study of biological processes in living organisms. 2) The chemistry and importance of carbohydrates and their relevance in nutrition.

	3) The properties of proteins and their various metabolic forms and functions. 4) The role of amino acids as building blocks of proteins and only in this form can proteins be absorbed and utilized for maintenance of physical well being. 5) The role of nucleic acids and nucleoproteins in genetics, reproduction and transmission of hereditary factors. 6) The chemistry of lipids and its importance in physiological processes. 7) The roles of minerals and vitamins in the maintenance of homeostatic balance. 8) Mediation of metabolic reactions in the skeleton, tissues, body fluids, digestive juices, etc. 9) The effects of nutrients deficiencies on the state of health of the living animal. 10) The inexhaustible roles of enzymes and hormones in animal metabolism and their modes of operation.		
Course References:	* Principles of Biochemistry by Lehninger, Nelson & Cox * Textbook of biochemistry by A VSS, Ramarao * An Introduction to Practical Biochemistry by D.T. Plummer * Laboratory Manual in Biochemistry by Jairaman * PowerPoint lectures.		
Course topics (Theory)	Week	Learning Outcome	
- Introduction to Chemistry. - Definition of Biochemistry. - Cell Structure, Cell Components and their Functions	1	1&2	
- Water, Acids, Bases and Buffer	2	1&2	
- Chemistry of Carbohydrates	3	1&2	
- Chemistry of Amino Acids and Protein	4	1&3&4&5	
- Chemistry of Lipids	5	1&6	
- Metabolism of Carbohydrates	6	1&2	
- Krebs Cycle and Oxidative Phosphorylation	7	2&3&4&5&6	

- Metabolism of Proteins	8	3&4&5
- Metabolism of Lipids	9	3&6
- Micronutrients (Vitamins and Minerals) - Water Soluble Vitamins	10	7&8&9
- Trace Elements	11	7&8&9
- Detoxification	12	7&8&9&10
Practical Topics	Week	Learning Outcome
- Rules and procedures of general safety - Buffer solution preparation and pH measurement	1	1&2
- Sample collection - Type of collection procedures	2	1&10
- CBC test	3	1&8&9
- Estimation of haemoglobin	4	1&2&3
- Estimation of CSF sugar - Determination of reducing sugars	5	1&2&8&9
- Qualitative analysis of carbohydrates	6	1&2&8&9
- Tests for proteins and amino acids - Estimation of serum uric acid	7	1&3&8&9
- Separation of amino acids	8	1&3&8
- Qualitative tests for lipids	9	1&4&8&9
- Estimation of blood cholesterol	10	1&4&8&9
- Electrolyte blood test	11	1&7&8&9
- Estimation of DNA	12	1&3&10
Questions Example Design: <ul style="list-style-type: none"> - Complete the following sentences. - Define the following terms. - Fill in the blanks with correct choice. - Choose a phrase from list (A) then another from list (B) that completes its 		

meaning.

- **Enumerate the following.**
- **Describe the functions/purpose.**
- **Select True or False.**

Extra notes:

- **During semester time, the details are applied in assessment scheme.**

External Evaluator:

- **The topics are broad and are aimed to equip students with required knowledge to enable them to understand the chemistry & biochemistry of living cells and how to act.**