



Course Syllabus-MBBCh

1. Course title: Biochemistry – Y1-S1		Course Code: BIO1102
2. Credit/contact hours:	102	
3. Number of weeks	16	
4. Level/year at which this course is offered:	Year 1- Semester 1	
5. Pre-requisites for this course (if any): High school Biology or chemistry		

Course Description

This course discusses the molecular basis of cell function and the biochemical basis of structures and functions of the body

- Special emphasis is given to disease states with biochemical or molecular biological bases and genetic abnormalities.
- The broad objective of the course is to contribute to the formation of a comprehensive well-integrated foundation of basic medical knowledge for concurrent and future comprehension of pathogenesis, clinical presentation, complications, diagnoses and the use of different therapeutic modalities.

Practical laboratory sessions reinforce basic theoretical concepts and demonstrate the biochemical bases of key metabolic diseases. Clinical case scenarios and presentations with group discussions are used for enhancing the development of integrated application of biochemical knowledge in understanding disease processes and presentation

This course lays the foundation for students to understand intermediary metabolism which will be taught in Y1S2.

Course Learning Outcomes

CLOs		Aligned-PLOs
1		
K1	Describe the structure, classification, and properties of carbohydrates, lipids, proteins, enzymes, vitamins, minerals, nucleotides, DNA and RNA.	A3

CLOs		Aligned-PLOs
K2	Describe the structure, function and disease effects of sub-cellular organelles and the control of acid base balance in health and disease.	A1
K3	Correlate molecular structures and chemical properties of macromolecules to their functions	A3
K4	Explain the role of nutrients in sustaining the normal functions of the body	A2
K5	Explain the mechanisms of normal and abnormal acid base balance in human body	A2
K.6	Identify sign and symptoms of nutritional deficiency disease states.	A3
S1	Identify laboratory instruments, apparatuses and glass ware and their practical uses.	B3
S2	Demonstrate the calculation of concentration of compounds.	B1

Course Delivery Plan:

No	List of Topics	Contact Hours
1	Cell chemistry	6
2	Protein and Amino Acids	10
3	Carbohydrates	15
4	Lipid	12
5	Enzymes and acid base balance	12
6	Nutrition	19
7	Bioenergetics and Oxidative Phosphorylation	6
8	Globular hemoproteins and Fibrous protein	11
9	Physical chemistry	4
Total		

Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
K1	Describe the structure, classification, and properties of carbohydrates, lipids, proteins, enzymes, vitamins, minerals, nucleotides, DNA and RNA. Describe the structure, function and disease effects of sub-cellular organelles and the control of acid base balance in health and disease.	Lectures, Laboratory practical lessons	Written exam (Mcq, match, Short account) Practical exam Oral test Quizzes Student presentation Assignments
K2	Correlate molecular structures and chemical properties of macromolecules to their functions	SGD, Lecture	Written exam (Short account) Practical exam Oral test
K3	Explain the role of nutrients in sustaining the normal functions of the body	SP, Practical	Written exam (Short account) Practical exam Oral test
K4	Explain the mechanisms of normal and abnormal acid base balance in human body	Lecture, CBL	Written exam (Short account) Practical exam Oral test
S5	Identify laboratory instruments, apparatuses and glass ware and their practical uses.	Practical, SGD	Practical

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Year Assessment	16	30%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
2	Oral	16	15%
3	Practical	16	20%
4	MCQ	16	35%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Murray..., R.K., Granner, D., & Rodwell, V.W. (2003). Harper's Illustrated Biochemistry. Armutak, E.I. (2021). Lippincott's Illustrated Reviews: Biochemistry 6 th Edition. Janson, L. W., & Tischler, M. E. (Eds.). (2012). <i>The big picture: medical biochemistry</i>. McGraw-Hill Medical. Lieberman, M.A., & Ricer, R.E. (2020). Board Review Series: Biochemistry, Molecular Biology, and Genetics, 7e.
Essential References Materials	<ul style="list-style-type: none"> All handout and power point presentations were given to students
Electronic Materials	<ul style="list-style-type: none"> AMBOSS Access Medicine
Other Learning Materials	Library

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory, Classrooms, Demonstration rooms
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, Smart board, Wi-Fi
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Test tubes, Chemicals, Heaters

Instructor:

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