



Master of Science (Zoology)
M.Sc. Zoology Semester II

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| Course Code | PS02CZOO53 | Title of the Course | Medical Biochemistry |
| Total Credits of the Course | 04 | Hours per Week | 04 |

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| Course Objectives: | Students should be able to : 1. Apply biochemical knowledge in normal and diseased status 2. Gain knowledge regarding the analysis of biological fluids for its chemical constituents and correlating the same in health and illness 3. Obtain advanced integrated knowledge and understanding of biochemistry behind various diseases |
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| Course Content | | |
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| Unit | Description | Weightage* (%) |
| 1. | Diagnostic Enzymes: Serum Enzyme in heart disease, GI tract disease, muscle disease, bone diseases and in Malignancy, Clinical importance of Isoenzyme- Creatinine kinase and lactate dehydrogenase, Alkaline phosphatase Mineral metabolism and its Disorders: Calcium and Iron- Mechanism of absorption, storage and transport, Factors affecting its homeostasis, associated abnormality. Vitamins A, D, B ₁₂ C: Dietary sources, biochemical functions and specific deficiency diseases | 25 |
| 2. | Types of Hemoglobins, Haemoglobinopathies (sickle cell anaemia and Thalassemias), and Catabolism of Heme, Jaundice and its type Organ function tests: Pancreatic function tests, Test for gastric function, Composition of gastric juice, concepts of free and bound acid, renal function tests, Liver function test, diagnosis of Birth Defects Tissue protein and diseases: Biosynthesis and types of collagen, disorders of collagen, Skin disorder (Albinism) | 25 |
| 3. | Cardiovascular Diseases- Mechanism of Atherosclerosis, Risk factors and Lipid profile, Types of Hypertension and its Mechanism Neurological Disorders – Biochemical mechanism of Epilepsy, Alzheimer's disease, Parkinson Disease Biochemistry of Cancer – Properties of Cancer cell, Etiology of Cancer, Mechanism of carcinogenesis, Mechanism of Metastasis, Most commonly used tumor Markers. Biochemistry of AIDS: Structure of HIV virus and its genes, Course of Infection, Laboratory analysis | 25 |





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| 4. | Human microbiota and their role in human health, Host-pathogen interaction, opportunistic microorganisms, Infection – types of infection, method of infection, factors influencing infection. Spread of infectious diseases, Respiratory tract infection- Tuberculosis, corona virus disease; Food poisoning: Biochemistry of Cholera—Vibrio Toxins, Pathogenesis | 25 |
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| Teaching-Learning Methodology | Topics will be taught and discussed in interactive sessions using conventional black board and chalk as well as ICT tools such as power point presentations and videos. Practical sessions will be conducted in a suitably equipped laboratory either individually or in groups depending on the nature of exercise as well as availability of infrastructure. Course materials will be provided from primary and secondary sources of information. |
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| Evaluation Pattern | | |
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| Sr. No. | Details of the Evaluation | Weightage |
| 1. | Internal Written / Practical Examination (As per CBCS R.6.8.3) | 15% |
| 2. | Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3) | 15% |
| 3. | University Examination | 70% |

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| Course Outcomes: Having completed this course, the learner will be able to | |
| 1. | Suggest, evaluate, interpret biochemical investigation in a given clinical situation and apply knowledge in clinical problems. |

| Suggested References: | |
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| Sr. No. | References |
| 1. | Chatterjea, M., N., Shinde, R., (2011). Textbook of Medical Biochemistry. 8 th edn. Jaypee Brothers Medical Publishers, New Delhi |
| 2. | Vasudevan, D. M., Sreekumari, S., (2010). Textbook of Biochemistry for Medical Students. 6 th Edn. Jaypee Brothers Medical Publishers, New Delhi. |





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| 3. | William, J., M., Stephen, K., A., (2014). Clinical Biochemistry- Metabolic and Clinical aspects. 3 rd Edn. Wiley Publications, United States |
| 4. | Burtis, C., A., Ashwood, E., R., Bruns, D., E., (2012). Tietz Textbook of Clinical Chemistry. 5 th Edn. Saunders Publications, United States. |
| 5. | Dinesh, P., (2014). Textbook of Medical Biochemistry. 3 rd Edn. Elsevier Publications, India |

On-line resources to be used if available as reference material

On-line Resources

Relevant review articles/research papers/handouts of latest development in the subject

