

Course Title: Biochemistry
Code Number: HPE-305
Credit Hours: 03 hrs
Pre-Requisites course Requirement/Skills: Nil

Objectives of Course

At the successful completion of this course students will be able:

- 1) To prepare the students for better understanding of biochemical approach regarding basic nutritional components enabling to apply this knowledge in major disciplines of Sports Nutrition and other sciences.

Course Contents

Unit-I Biochemistry of Carbohydrates

- 1.1 Biochemical structure of Mono, di, Oligo and Polysaccharides
- 1.2 Biochemical Importance of Mono, di, Oligo and Polysaccharides

Unit-II Biochemistry of Fats

- 2.1 Biochemical structure of Solid and Liquid Fats
- 2.2 Biochemical significance of Solid and Liquid Fats

Unit-III Biochemistry of Proteins

- 3.1 Biochemical structure of Amino Acids
- 3.2 Biochemical significance of Essential and Non-essential amino acids

Unit-IV Metabolic Pathways

- 4.1 Kreb's cycle
- 4.2 Glycolysis
- 4.3 Electron Transport Chain

Teaching Learning strategies

- a) Inquiry based learning
- b) Cooperative Learning
- c) Multimedia usage
- d) Concrete examples
- e) Think -Pair-Share

Assessment and Examination

#	Elements	Weightage	Details
1	Theory Examination based Assessment	40%	It takes Place at the mid-point of the semester. It is mostly in the form of a test but owing to the nature of the course. The teacher may assess their students based on term paper, research proposal development, field work and report writing etc.
2	Formative Assessment	60%	It is continuous assessment. It includes classroom Participation, attendance, assignments and Presentations, homework, attitude, and behavior, hands on activities, short test, quizzes etc.

Recommended Books

1. Harborne, J. B. (2014). *Introduction to ecological biochemistry*. Academic press.
2. Muller, F. (2018). *Chemistry and Biochemistry of Flavoenzymes: Volume II*. CRC Press.
3. Lundblad, R. L., & Macdonald, F. (Eds.). (2018). *Handbook of biochemistry and molecular biology*. CRC Press.
4. Clines, G. A. (2014). *Cell, Biochemistry, and Molecular Biology of Bone*.
5. Kenney, W. L., Wilmore, J., & Costill, D. (2015). *Physiology of sport and exercise 6th edition*. Human kinetics.