

Department of Food Sciences
University of the Punjab, Lahore
Course Outline



Programme	B.Sc. (Hons.) Food Science & Technology	Course Code	FST – 201	Credit Hours	3 (3-0)
Course Title	PRINCIPLES OF HUMAN NUTRITION				
Course Introduction					
<p>This course is designed to provide a comprehensive understanding of the fundamental principles of nutrition and their application throughout the human life cycle. As the science of nutrition evolves, we face new and emerging global challenges that require a solid grasp of both historical context and current trends. Through this course, students will explore the essential nutrients and their roles in maintaining health, delve into the physiological processes of digestion and metabolism, and learn to manage nutrition-related disorders. By the end of this course, students will be equipped with the knowledge and skills necessary to make informed dietary choices and promote overall well-being.</p>					
Learning Outcomes					
<p>On the completion of the course, the students will:</p> <ol style="list-style-type: none"> 1. Understand nutritional terms, nutrients, their actions and balance in relation to our health. 2. Demonstrate an understanding of fundamental concepts of nutrition in everyday life. 3. Plan balanced diet throughout life cycle. 					
Course Content				Assignments/Readings	
Week 1	Unit-I				
	1.1 Food Groups				
	1.2 Nutrients				
	1.3 Diet				
	1.4 Balanced diet				
1.5 Meal planning					
Week 2	Unit-II				
	2.1 Water, Functions				
	2.2 Sources of water in the body				
	2.3 Water loss from the body				

	<p>2.4 Regulation of water balance</p> <p>2.5 Quality of water</p>	
	<p>2.6 Dietary requirements</p> <p>2.7 Content in food</p>	
Week 3	<p>Unit-III</p> <p>3.1 Sugars</p> <p>3.2 Oligosaccharides</p> <p>3.3 Polysaccharides</p>	
	<p>3.4 Dietary fibre</p> <p>3.5 Energy</p> <p>3.6 Sweeteners</p>	
	<p>3.7 Dietary requirements</p> <p>3.8 Energy and carbohydrate contents of foods</p>	
Week 4	<p>Unit-IV</p> <p>4.1 Fats and oils</p> <p>4.2 Phospholipids</p>	
	<p>4.3 Glycolipids</p> <p>4.4 Sterols and steroids</p>	
	<p>4.5 Dietary recommendations</p> <p>4.6 Content in foods</p> <p>4.7 Fat substituents</p>	

Week 5	Unit-V 5.1 Amino acids 5.2 Protein synthesis 5.3 Distribution of proteins in human body	
	5.4 Classification of proteins 5.5 Functions of proteins	
	5.6 Protein requirements 5.7 Quality of proteins 5.8 Content in food	
Week 6	Unit-VI 6.1 Thiamine 6.2 Riboflavin 6.3 Niacin	
	6.4 Pyridoxine 6.5 Folic acid 6.6 Pantothenic acid 6.7 Biotin	
	6.8 Cyanocobalamin 6.9 Other vitamins of the B-group 6.10 Ascorbic acid 6.11 Content in food	
Week 7	Unit- VII 7.1 Vitamin A	
	7.2 Vitamin D	
	7.3 Vitamin E 7.4 Vitamin K	
Week 8	Unit- VIII 8.1 Calcium	

	8.2 chlorine 8.3 iodine 8.4 Iron	
	8.5 Magnesium 8.6 Phosphorus 8.7 Potassium 8.8 Sodium	
	8.9 Sulphur 8.10 Other inorganic materials 8.11 Losses during processing 8.12 Content in food	
Week 9	Unit-IX 9.1 The mouth 9.2 The oesophagus	
	9.3 The stomach 9.4 The small intestine	
	9.5 The large intestine	
Week 10	Unit-X 10.1 Absorption in the Small Intestine (Carbohydrates, Proteins, Fats)	
	10.2 Absorption in the Large Intestine (Vitamins, Minerals, Water) Metabolism of nutrients	
	10.3 Metabolism of Nutrients 10.4 Catabolism (Breakdown of Nutrients for Energy) 10.5 Anabolism (Synthesis of New Nutrient Molecules)	
Week 11	Unit-XI 11.1 Infant nutrition 11.2 Child nutrition	
	11.3 Nutrition in adolescence	

	11.4 Adult Nutrition	
Week 12	Unit-XII 12.1 Nutrition of the pregnant and the lactating women	
	12.2 Nutrition and healthy ageing	
	12.3 Malnutrition	
Week 13	Unit- XIII 13.1 Dental caries 13.2 Lactose intolerance	
	13.3 Overweight and obesity 13.4 Osteoporosis	
	13.5 Atherosclerosis and coronary heart diseases 13.6 Cancer	
Week 14	Unit-XIV 14.1 Diabetes 14.2 Colitis	
	14.3 Diverticulosis 14.4 Peptic ulcer	
	14.5 Gallbladder Disease	
Week 15	Unit- XV 15.1 Concept of a Balanced Diet	
	15.2 Importance of Balanced diet	
	15.3 Balanced diet according to age group	
Week 16	Unit-XVI 16.1 Calculation of BMR	
	16.2 Sustainable Nutrition: Environmental and Ethical Considerations	
	16.3 Designing a Balanced Diet Plan for Different Life Stages	

Textbooks and Reading Material

1. Geissler, C. & Powers, H. (2010). Human Nutrition. Churchill Livingstone, London, UK.
2. Denis, M.M. & Robert, E.C. & Wildman. (2019). Advanced Human Nutrition. Jones & Bartlett Learning, USA.
3. Awan, J.A. (2007). Elements of Food and Nutrition. Unitech Communications, Faisalabad- Pakistan.
4. Bamji, M.S., Rao, N.P. & Reddy, V. (2004). Textbook of Human Nutrition. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, India.
5. Eastwood, M. (2003). Principles of Human Nutrition. John Wiley & Sons, Inc., New York, USA.
6. Garrow, J.S., James, W.P.T. & Ralph, A. (2000). Human Nutrition and Dietetics. Churchill Livingstone, London, UK.

Teaching Learning Strategies

1. Lectures
2. Discussions
3. Presentations
4. Quiz
5. Assignments

Assignments: Types and Number with Calendar

1. Group Project (Designing a Balanced Diet Plan for Different Life Stages) held on 15, May 2024
2. Calculate your own BMR and devise the diet chart accordingly

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end 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.