Institute of English Studies
Faculty of Arts and Humanities
University of the Punjab, Lahore

Course Outline

Programme	BS English Literature	**Course Code**	**NPH-102**	**Credit Hours**	3
Course Title	**Fundamentals of Human Nutrition**				

Course Introduction

Fundamentals of Human Nutrition is an introductory-level undergraduate course that focuses on the basic knowledge of nutrition and food in disease prevention and management. This course introduces students to descriptions and functions of nutrients, digestion and absorption, nutrient deficiencies, requirements and food sources. This course will also enable students to understand the types and role of micronutrients and macronutrients in human body.

Learning Outcomes

On the completion of the course, the students will be able to:

1. Explain the functioning of digestive system and processes through which food provides energy to the body.
2. Compare the nutrient content and vitamin composition of different foods to understand their role in maintaining health.
3. Assess personal dietary intake and evaluate food choices to implement healthier lifestyle changes.
4. Create and analyze balanced meal plans for oneself and others to promote overall well-being.
5. Argue and justify how food can function as medicine in preventing and protecting human body against various diseases.

	Course Content	**Assignments/Readings**
Week 1	**Unit-I Introduction** 1.1 Food, Nutrients and Nutrition 1.1.1 Introduction and Overview 1.1.2 Definitions of: Diet, Foods, Nutrition, Nutrition Science 1.1.3 Role of Food in maintenance of health 1.1.4 Factors affecting Food choices 1.1.5 Identify 6 classes of nutrients: Water, Carbohydrates, Lipids (fats), Proteins, Vitamins, Minerals 1.1.6 Classification of Nutrients: Inorganic and Organic Nutrients Essential and Non-essential Nutrients Energy Yielding nutrients and Non-Energy yielding nutrients 1.2 Malnutrition - global and local scenario 1.2.1 Overnutrition: Overweight and obesity	Reading: Understanding Nutrition Chapter 1 Write a short note on malnutrition in Pakistan Reading: Understanding Nutrition Chapter 20

	1.2.2 Undernutrition: Wasting, stunting, underweight, micronutrient deficiencies 1.2.3 Protein Energy Malnutrition (PEM): Kwashiorkor, Marasmus 1.2.4 Global perspective: UNICEF report, Gaza (Palestine)	
Week 2	**Unit-I Introduction** 1.3 Diet, balanced diet, food groups 1.3.1 Definitions 1.3.2 What is balanced diet? 1.3.3 Introduction to all food groups: Overview of what nutrients are present in them and examples of foods. 1.4 Foundations of healthy diet, meal planning 1.4.1 Diet Planning Principles 1.4.2 The Food Guide Pyramid	Reading: Understanding Nutrition Chapter 2 Create Meal Planning: My Plate
Week 3	**Unit-II Water** 2.1 Introduction 2.1.1 Body Water: ICF and ECF 2.2 Functions 2.2.1 Functions of water that it performs in the body 2.3 Regulation in body 2.4 Regulatory Mechanisms 2.4.1 Water Balance 2.4.2 Sources of water in body: Intake = Output 2.4.3 Mechanisms of regulation of water balance: Thirst, The kidneys: ADH and RAAS system	Reading: Understanding Nutrition Chapter 12 Calculate daily water intake
Week 4	**Unit-II Water** 2.5 Dietary requirements 2.5.1 Recommended intake 2.5.2 Factors influencing dietary requirements: diet, age, climate, activity 2.6 Electrolytes and acid base balance 2.6.1 Fluid and Electrolyte Balance and Imbalance 2.6.2 Acid base Balance 2.7 Dehydration and Water Intoxication	Reading: Understanding Nutrition Chapter 12 Write a short note on ORS and its uses
Week 5	**Unit-III Carbohydrates** 3.1 Types, Dietary fiber 3.1.1 Monosaccharides 3.1.2 Disaccharides 3.1.3 Polysaccharides: Glycogen, starch, dietary fiber	Prepare a debate: Low carb vs Low fat diet Reading: Understanding Nutrition Chapter 4

	3.1.4 Dietary fiber: Soluble and insoluble 3.2 Role in body: 3.2.1 Role of carbohydrates in the body 3.3 Bulk and alternative sweeteners 3.3.1 Bulk sweeteners definition, uses, examples 3.3.2 Alternative sweeteners definition, uses, examples 3.4 Recommended intake and energy value 3.4.1 Recommended intake of fiber and carbohydrates 3.4.2 Energy Value of Carbohydrates	
Week 6	**Unit-IV Fats and Oils** 4.1 Types and functions 4.1.1 Difference between fats and oils 4.1.2 Triglycerides introduction: how are fats formed 4.1.3 Fatty Acids 4.1.4 Classification based on: Short chain and long chain Saturated and unsaturated Essential and non-essential fatty acids 4.1.5 Functions of fats: In the diet, as stored fats 4.2 Recommendations concerning fat intake 4.2.1 Recommended percentage of dietary intake 4.2.2 Saturated fat intake < 10% 4.2.3 Cholesterol amount recommended 4.3 Fat Substitutes 4.3.1 Protein based, carbohydrates based and Synthetic compounds with examples 4.4 Energy Value	Write a short note on Saturated vs Unsaturated fats Reading: Understanding Nutrition Chapter 5
Week 7	**Unit-V Proteins** 5.1 Amino Acids 5.1.1 What are proteins made of, structure of amino acids 5.2 Protein Synthesis and Degradation 5.2.1 Constant need of nitrogen balance 5.2.2 How are proteins synthesized: transcription, translation 5.3 Quality of Proteins 5.3.1 What are high quality proteins + examples 5.4 Classification and functions 5.4.1 Essential and non-essential amino acids definition with examples	Write a short note on Sources of Proteins Reading: Understanding Nutrition Chapter 6

	5.4.2 Protein functions in the body: structural materials, enzymes, hormones, fluid balances, acid base balance, transportation, antibodies, energy and glucose, others 5.5 Dietary Requirements 5.5.1 Recommended percentage 5.6 Energy Value	
Week 8	**MID TERM EXAMINATION**	
Week 9	**Unit-VI Vitamins** 6.1 Classification and types 6.1.1 Fat soluble vs water soluble vitamins 6.1.2 General roles of vitamins in metabolism (coenzymes, antioxidants, regulation) 6.1.3 Toxicity 6.2 B-Complex Vitamin Sources and Names 6.2.1 Dietary sources	Write a short note on Supplements and their effectiveness Reading: Understanding Nutrition Chapter 10
Week 10	**Unit-VI Vitamins** 6.2 B-Complex Vitamins 6.2.2 Function of each vitamin and deficiency disease 6.3 Fat Soluble Vitamins 6.3.1 Dietary sources 6.3.2 Function of each vitamin and deficiency disease	Reading: Understanding Nutrition Chapter 10 Write a short note on Deficiency Signs and Symptoms Reading: Understanding Nutrition Chapter 11
Week 11	**Unit-VII Mineral Elements** 7.1 Types 7.1.1 Major vs Trace Minerals 7.2 Requirements 7.2.1 RDA 7.3 Major Minerals and their Role in Body 7.3.1 Dietary sources of Minerals 7.3.2 Functions 7.3.3 Deficiency disease	Reading: Understanding Nutrition Chapter 12 Write a short note on Calcium and Bone health
Week 12	**Unit-VII Mineral Elements** 7.4 Trace Minerals and their Role in Body 7.4.1 Dietary sources 7.3.2 Functions 7.3.3 Deficiency disease 8.1 Introduction 8.1.1 Alimentary tract: Parts and functions of mouth, esophagus, stomach and intestines	Drawing and labeling of Digestive tract Reading: Understanding Nutrition Chapter 13 Reading: Understanding Nutrition Chapter 3

	Group Presentations begin.	
Week 13	**Unit-VIII Digestion** 8.2 Digestive juices 8.2.1 Digestive juices and enzymes: saliva, gastric juice, pancreatic enzymes, bile 8.3 Secretions 8.3.1 Gastrin, secretin Group Presentations (continued)	Prepare presentation on Digestive problems Reading: Understanding Nutrition Chapter 3
Week 14	**Unit-IX Absorption and metabolism of nutrients** 9.1 Protein, Lipids 9.1.1 Breaking Down nutrients for energy Summarize the main steps in the energy metabolism of glycerol, fatty acids, and amino acids. Understand energy pathways 9.2 Carbohydrates 9.2.1 Breaking Down nutrients for energy Summarize the main steps in the energy metabolism of glucose and ATP Understand energy pathways Group Presentations (continued)	Create and label Energy Cycles Reading: Understanding Nutrition Chapter 7
Week 15	**Unit-X Nutrient and Dietary Deficiency** 10.1 Nutrition through life cycle 10.1.1 Infant nutrition, Child nutrition, Nutrition in adolescence, Adult nutrition, Nutrition of the pregnant and lactating women, Nutrition and healthy ageing, Athletes 10.2 Special Nutrient Requirement 10.2.1 Malnutrition, Dental caries, Lactose intolerance, Over-weight and obesity, Osteoporosis, Atherosclerosis and coronary heart diseases, Diabetes, Colitis, Peptic ulcer, Celiac disease Group Presentations end.	Prepare presentation on Special Nutrition requirements Reading: Understanding Nutrition Chapter 16,17
Week 16	**END TERM EXAMINATION**	

Textbooks and Reading Material

1. Textbooks

- Whitney, E., & Rolfes, S. R. (2022). *Understanding nutrition* (16th ed.). Cengage Learning
- Awan, J. A. (2015). *Elements of food and nutrition*. Unitech Communications.

2. Suggested Readings

2.1. Books

- Mahan, L. K., & Raymond, J. L. (2017). Krause and Mahan's food and the nutrition care process (14th ed.). Elsevier.

2.2. Journals/Reports

- The American Journal of Clinical Nutrition (AJCN)
- The Journal of Nutrition
- Molecular Nutrition & Food Research
- British Journal of Nutrition
- European Journal of Clinical Nutrition
- Public Health Nutrition
- Journal of Human Nutrition and Dietetics
- UNICEF Global Reports

Teaching Learning Strategies

1. Interactive In-class debates over recent diet trends
2. Peer reviewed meal planning activities in the class
3. Multimedia and visual aids for understanding of various topics
4. Project works to encourage group discussions and presentation of different topics

Assignments: Types and Number with Calendar

1. Pre-Midterm Quiz (5 marks)-Week 4
2. Assignment 1 (5 marks)-Week 7
3. Post Midterm Quiz (5 marks)-Week 10
4. Assignment 2 (5 marks)-Week 14
5. Group Presentations (5 marks)-Week 12-15

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	25%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment: Quiz/Class Participation	15%	Continuous assessment includes: Classroom participation, assignments, presentations, hands-on-activities, projects, readings, quizzes etc.
3.	Final Assessment	60%	Written Examination at the end of the semester.