

PH.D. PRE-COURSE WORK EXAMINATION SYLLABUS

Paper II: Recent Advances in Nutrition and Dietetics

Sr. No.	Topic	Details	Hours
1	Nutrigenomics and Personalized Nutrition	- Gene-diet interactions - Epigenetic modifications and dietary factors - Metabolomics in nutritional assessment - Personalized nutrition interventions	3
2	Cellular Nutrition	- Nutrient metabolism, environmental factors, disrupting pathways and triggering inflammation	
2	Advanced Nutritional Immunology	- Gut microbiome and immune function - Dietary modulation of inflammation - Nutritional strategies in autoimmune diseases - Immunonutrition in critical illness	3
3	Functional Foods and Nutraceuticals	- Bioactive compounds and their health effects - Novel food processing technologies - Regulatory aspects of functional foods - Clinical applications of nutraceuticals - Food fortification with bioactive compounds	3
4	Nutrition in Chronic Disease Management	- Nutritional oncology advancements - Dietary approaches in cardiovascular disease prevention - Medical nutrition therapy in diabetes management - Nutritional strategies in neurodegenerative diseases	3
5	Sports Nutrition and Performance	- Nutrient timing and periodization - Ergogenic aids and supplements - Hydration strategies for athletes - Recovery nutrition and injury prevention - Exercise physiology - Special body composition and nutrient requirements for different sports	3
6	Pediatric and Geriatric Nutrition	- Early life nutrition and long-term health outcomes- Nutritional management of childhood obesity (HF, HS, HD, Junk) - Maternal Nutrition - Parental attitude for Child Nutrition - Adolescent Nutrition - Breastfeeding (Human Milk Bank, PDHM and Top feeding) - Development of Adult Diseases (DOAI), Barker's Hypothesis The developmental Origins of health and Disease - IAP app for Growth Chart	3

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		<ul style="list-style-type: none"> -Sarcopenia prevention through diet- Nutrition in healthy aging - Theories of aging - Altered digestion and metabolism in aging - Special nutrient needs 	
7	Eating Disorders and Behavioral Nutrition	<ul style="list-style-type: none"> - Novel approaches in eating disorder treatment - Mindful eating interventions - Food addiction and reward systems - Cognitive behavioral therapy in nutrition counselling - Anorexia, Nervosa and Bulimia, Binge eating, etc 	3
8	Sustainable and Plant-Based Nutrition	<ul style="list-style-type: none"> - Environmental impact of dietary patterns - Plant-based protein quality and bioavailability - Sustainable food systems and nutrition security - Health effects of plant-based diets 	3
9	Nutrition Support in Critical Care	<ul style="list-style-type: none"> - Indirect calorimetry and energy expenditure assessment - Estimating Nutrient requirement based on clinical condition - Enteral nutrition advancements - Parenteral nutrition formulations - Nutrition in specific ICU populations (burns, trauma, etc.) - TPN 	3
10	Nutrient-Drug Interactions	<ul style="list-style-type: none"> - Pharmacokinetic and pharmacodynamic interactions - Dietary supplements and drug interactions - Nutrient depletion by medications - Management of nutrient-drug interactions 	3
11	Digital Health in Nutrition Practice	<ul style="list-style-type: none"> - Mobile apps for dietary assessment and monitoring - Artificial intelligence in nutrition care - Telemedicine in dietetic practice - Big data analytics in nutritional epidemiology 	3
12	Public Health Nutrition Interventions	<ul style="list-style-type: none"> - Food fortification strategies - School-based nutrition programs - Community-based obesity prevention - Nutrition policy and advocacy 	3

Total Hours: 36