

Programme Specific Outcomes for Department Level Courses for PhD in Foods & Nutrition

(2023-24 onwards)

- PSO 1: Students will develop an understanding of the current and emerging needs/trends in the field of Public health and Nutrition, Dietetics, and Food Science, including Food processing, Food Safety, novel food development, and their associated benefits.
- PSO 2: Students will understand the newer perspectives & challenges in delivering nutrition care in critical illnesses, health & disease conditions, public health nutrition program settings and in developing sustainable food systems, based on the latest guidelines and evidence based research/recommendations in public health nutrition, Dietetics & Food Science.
- PSO3: Students will develop skills to use available global/national softwares/technologies/techniques used in practice by public health nutrition, dietetics & food science professionals.

	The Maharaja Sayajirao University of Baroda Faculty of Family and Community Sciences Department of Foods and Nutrition				Academic Year				2023 -2024 Onwards		
DOCTOR OF PHILOSOPHY IN FOODS AND NUTRITION											
Year		Course Type: Compulsory Course Course Number: Course Title: Advances in Foods and Nutrition			Credits				03 (03+0)/03hrs/week		
Semester	I/II	Year of Introduction: 2023 Year of Syllabus Revision: - 2023			Maximum Grade				O		
Mode of Transaction		Lectures, Tutorials & Presentations, class discussions, online quiz									
Course Outcome (CO) CO1: Students will be able to understand and apply the methods of nutrition assessment in various clinical conditions. CO2: Students will be able to analyze and apply the evidence-based guidelines in management of acute and chronic illnesses. CO3: Students will be able to understand and analyze the role of nutrition in sustainable development. CO4: Students will be able to understand and analyze the policies to promote sustainable development. CO5: Students will be able to understand and apply the principles of safe food production, storage and distribution for improved nutrition and health outcomes of population. CO6: Students will be able to understand analyze the role of data science in new product development. CO7: Students will be able to identify and use appropriate tools for dietary and nutrition assessment.											
Unit No.	Topic			Contact Hours	Weightage (%)	BT Level	CO	PSO	Elements of Employability (Emp)/Entrepreneurship (Ent)/Skill Development (SD)	Relevance to Local (L)/National (N)/Regional(R)/Global (G)	Relation to Gender (G), Environment and Sustainability (ES), Human Values (HV)and Professional Ethics (PE)
I. Medical Nutrition Therapy	1. Nutrition Assessment i. Anthropometric Measurements ii. Biochemical Data iii. Medical Tests, and Procedures iv. Client History v. Nutrition-Focused Physical Findings			20	35	1,2,3	CO1 CO2 CO7		Emp,SD	L,N,R,G	-

	vi. Food/Nutrition-Related History vii. Body Composition and its components during metabolic stress viii. Energy Balance 2. Evidence Based Practice in Clinical Nutrition– Current guidelines and case studies in acute diseases i. Current evidence in management of Acute diseases with complications involving cardiac problems, gastrointestinal tract, renal disorders, respiratory infections, liver diseases, obesity, Covid, etc like EASL, KDIGO. ii. World gastroenterology organization global guidelines: Acute diarrhea in adults and children: a global perspective by World Gastroenterology Organization (2012). iii. World gastroenterology organization global guidelines: Obesity by World Gastroenterology Organization (2011). iv. Clinical practice guidelines given by Indian National Association for the study of the liver on Wilson’s disease and NAFLD (2018). v. Standard treatment guidelines given on National Health Portal, India. 3. Current evidence in management of Chronic diseases i. National and International guidelines for NCDs like AHA, ADA, JNV VIII, CDC, DEXA, KDIGO. ii. Prevention of type 2 diabetes evidence –based nutrition practice guidelines by Academy of Nutrition and Dietetics (2014). iii. Adult weight management evidence-based nutrition practice guidelines by Academy of Nutrition and Dietetics (2014). iv. Gestational diabetes mellitus evidence-based nutrition practice guidelines by Cancer Care Ontario (2016). v. Clinical practice guidelines for diabetes mellitus type1 by Basque Office for Health Technology Assessment, Osteba (2012).								
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	4. Guidelines for Nutrition in Critically Ill Patients- i. Enteral Nutrition ii. Parenteral Nutrition iii. personalized nutrition and metabolic support iv. ASPEN/ESPEN/ASPEN, etc), bedside rules for immunocompromised patients								
II Nutrition and Sustainable Development Goals (SDGs)	1. Role of Public Health Nutrition in achieving Sustainable Development Goals (SDGs) i. Linkages between Nutrition and SDGs ii. Addressing disparities in health and nutrition through SDGs ii. Perspectives and Challenges for achieving SDGs iii. Gender and SDGs – synergies and trade offs 2. Sustainable Food Systems for achieving SDGs i. Developing sustainable and resilient food systems ii. Climate change and sustainable food systems iii. Transforming food systems for sustainable, safe and healthy diets iv. Aligning Food Systems Policies to Advance Public Health Nutrition v. Capacity-building for a strong public health nutrition workforce in low-resource countries	15	30	1,2,3	CO3 CO4		Emp,SD	L,N,R,G	ES
III Trends in Food Science	1. Novel Food Materials and Technologies i. Bioactive substances, ii. Aternative protein iii. Novel food ingredients iv. Novel packaging technologies v. Molecular Gastronomy 2. Food quality assurance i. Advanced methodology and applications of various - omics techniques ii. Food traceability and authenticity iii. Food safety - risk assessment of chemical and/or biological hazards iv. Food allergies and intolerances 3. Data science application in food i. Computational Gastronomy ii. Food pairing iii. Culinary and drug interventions	15	25		CO5 CO6		Emp, SD	L,N,R,G	-

IV Tools and Software Applications in Foods and Nutrition	1. Tools for Dietary Assessment i. INDDEx ii. NutriCal iii. DietCal								
	2. Nutrition Assessment and Screening Tools i. AnthroPlus ii. SAM Photo Diagnosis App iii. Nutritional Risk Screening (NRS-2002) iv. Malnutrition Universal Screening Tool (MUST) v. Short Nutritional Assessment Questionnaire (SNAQ) vi. Malnutrition Screening Tool (MST) 3. Nutrition Advocacy Tools i. PROFILES ii. LiST iii. MINIMOD iv. Cost of Diet v. Evidence and Gap Map	10	10			CO7		Emp,SD	L,N,R,G

References

1	Kane K and Prelack K (2019) Advanced Medical Nutrition Therapy, Jones & Bartlett Learning, USA, ISBN 9781284042634
2	Cifuentes A (2013) Foodomics: Advanced mass spectrometry in modern food science and nutrition, Willie and sons, ISBN 9781118169452
3	Noureddine Benkeblia (2016) OMICs Technologies: Tools for food science (special Indian edition reprint 2020), CRC publication, ISBN 9780367814108
4	Mehta et al (2018) Practice Guidelines for Nutrition in Critically Ill Patients: A Relook for Indian Scenario, Indian Journal of Critical Care Medicine, published by Wolters Kluwer - Medknow
5	Reber E, Gomes F, Vasiloglou MF et al. Nutritional Risk Screening and Assessment. J Clin. Med. 2019 (8):1065. DOI: 10.3390/jcm8071065
6	Raymond JL and Morrow K (2022) Kraus and Mahan's Food and the Nutrition Care Process, 15 th Edition, Elsevier Publication, Canada
7	Skipper A, Coltman A, Tomesko A et al. Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults. J Acad Nutri Diet. 2019.
8	ASPEN Clinical Guidelines - https://www.nutritioncare.org/clinicalguidelines/
9	ESPEN Guidelines and Consensus Papers - https://www.espen.org/guidelines-home/espen-guidelines
10	Society of Critical Care Medicine Guidelines - https://www.sccm.org/Clinical-Resources/Guidelines/Guidelines
11	2021 Dietary Guidance to Improve Cardiovascular Health: A Scientific Statement From the American Heart Association
12	Sustainable Food Systems http://www.fao.org/3/ca2079en/CA2079EN.pdf
13	Latest The State of Food Security and Nutrition in the World by FAO http://www.fao.org/documents/card/en/c/ca9692en
14	Milestones in Health Promotion - Statements from Global Conferences. WHO, 2009. http://www.who.int/healthpromotion/Milestones_Health_Promotion_05022010.pdf

15	Bakker S, Macheka L, Eunice L, Koopmanschap D, Bosch D, Hennemann I, Roosendaal L (2021) Food-system interventions with climate change and nutrition co-benefits, Wageningen Centre for Development Innovation
16	The Indian Model of SDG Localisation (2022) United Nations High-Level Political Forum on Sustainable Development and NITI Aayog, New Delhi, India
17	Nutrition Modeling Tools for Advocacy, Decision-Making & Costing (2017) New York Academy of Sciences and Micronutrient Forum
18	Journals- BMC Public Health, Public Health in Practice, Journal of Environmental Health and Sustainable Development, Journal of Public Health, American Journal of Clinical Nutrition, Journal of Nutrition Research (IAPEN), Frontiers in Sustainable Food Systems, Trends in Food Science & Technology

PhD in Foods and Nutrition (2023 onwards) – Level 10

Programme Specific Outcomes for Department Level Courses for PhD in Foods & Nutrition (2023 onwards)

PSO 1: Students will develop understanding of the current & emerging research studies

PSO 2: Students will understand the newer perspectives & challenges in research paper writing

PSO 3: Students will learn application of statistical research

PSO4: Students will develop skills to develop scientific interactions

PSO5: Students will make their own scientific presentations effectively to strengthen their skills in communication

Syllabus of the course

 सत्यं शिवं सुन्दरम् Estd. 1949 Accredited Grade "A+" by NAAC	NAAC Accredited "A+"Grade Faculty of Family and Community Sciences The Maharaja Sayajirao University of Baroda		Academic Year					2023-24		
DOCTOR OF PHILOSOPHY IN FOODS AND NUTRITION – Level 10										
Year	I	Core Research Proposal Presentation	Credits					3(0+ 3) 90 hours/week		
Semest er	I	Year of Introduction: 2023 Year of Syllabus Revision: 2023	Maximum Grade					O		
Mode of Transaction		Lectures, Tutorials & Presentations								
Course Outcome (CO) 1. Student will be able to learn various types of Research Designs and its presentation 2. Student will be able to develop better communication skills and appropriate techniques 3. Student will be able to grasp knowledge-research terminologies and various fields 4. Student will be able to develop keen understanding on fine aspects of the subject 5. Student will be able to independently conceptualize research studies										
Uni t No.	Topic		Contact Hours	Weigh tage (%)	BT Level	CO	PSO	Eleme nts Emp/En t/SD	Releva nce to L/N/RG	Relation to G/ES/HV/P E
Research proposal presentation Objectives: i. Student will be able to frame the study title ii. Student will obtain skills for collecting and organizing ROL, iii. Student will be conceptualising appropriate planning methodology, pattern for analysis.										
I	a) What is research b) How to read a scientific paper		10 h	25%	1,2	1	1	Y	L,R,G	G,ES, HV,PE

	c) Framing title of the study d) Conceptualisation as per theme e) Review of Literature f) Collect ROL in an organised manner g) Use of media mode for presentation								
II	a) Skill development for building proposal b) Conceptualisation of the research work with detail c) Framing of objectives, plan of study d) Constituting hypothesis of the study	20 h	15%	1,2,3,4	2	2,4	Y	L,N,G	G,ES, HV.PE
III	a) Ethical considerations and developing the check list b) Methodological approaches for the planned research c) Qualitative and quantitative methods d) Basic plan of analysis	30 h	20%	1,2,3	2,3		Y	L,N,R,G	G,ES, HV.PE
IV	a) Planning the results and discussion b) Conclusions and highlights of the study c) Forming the expected outcomes: i. Primary outcomes ii. Secondary outcomes	20 h	25%	1,2,3,4	4,5		Y		G,ES, HV.PE
V	a) Publishing scientific papers b) UGC care journals- Impact Factor c) Knowledge on EBSCO, Scopus, Springer, Elsevier etc	10 h	15%	1,2,3,4			Y		G,ES, HV.PE

References

1	https://aut.ac.nz.libguides.com/APA7th/powerpoint
2	https://research.com/research/how-to-cite-a-powerpoint-presentation-in-apa
3	Scribbr.com
4	Easybib.com
5	https://libguides.wigan-leigh.ac.uk/c.php
6.	Books.google.co.in
7	National Nutrition Monitoring Bureau (Latest data)
8	SRS, NFHS Reports, CES, RSOC & other latest Reports for India & Gujarat
9	Hendrik TE, Bickmanh and Rog DJ (1993). Applied research design – A practical guide. Sage Publications Inc., California
10	Kirk J and Miller ML (1986). Reliability and validity in qualitative research. Qualitative research methods, Vol 1. Sage Publications Inc., California

11	Miles MB and Huberman AM (1994). Qualitative data analysis – An expanded source book (2nd ed.). Sage Publications Inc., California
12	Snedecor GW and Cochran WG (1968). Statistical methods. Oxford and IBH Publishing Company, New Delhi
13	H. Russell Bernard, Amber Wutich, Gery W. Ryan (2016) Analyzing Qualitative Data: Systematic Approaches; SAGE Publications
14	Operational Research to Improve Health Services, A guide for proposal development, 2013. ISBN 978-0-620-57795-3; Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences, Stellenbosch University International Union Against Tuberculosis and Lung Disease
15	Margaret L. Brandeau, Francois Sainfort, William P. Pierskalla (2006) Operations Research and Health Care: A Handbook of Methods and Applications Springer Science & Business Media
16	Biostatistics – A Manual of Statistical Methods for use in Health, Nutrition and Anthropology – Second Edition, K Visweswara Rao
Journals 1. Indian Journal Med. Research 2. Asia Pacific journal of Nutrition 3. Qualitative Health Research 4. Cochrane reviews	