

Subject Description Form

Subject Code	FSN1004
Subject Title	Fundamentals of Modern Science in Food and Nutrition
Credit Value	3
Level	1
Pre-requisite	FS1001 Fundamentals of Modern Science
Objectives	This subject aims to give students a broader understanding of the science knowledge thru integrated approach, covering subjects such as chemistry and biology, while emphasizing the core principles and concepts required for food and nutritional studies.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> Comprehend and become well-versed in essential scientific principles and concepts in food science and nutrition Describe the functions and structure of the basic units of organisms in food science and nutrition Value the variety within scientific disciplines and cultivate both multidisciplinary and interdisciplinary perspectives on scientific matters Foster a curiosity for science and appreciate its relevance to food science and nutrition.
Subject Synopsis/ Indicative Syllabus	<p>The topics covered in this subject are included to fulfil the requirement of “Foundation content” as set out by the Institute of Food Technologists (IFT), and the Core Competency under “Science and Research Skills” as set out by the Association for Nutrition (AfN).</p> <p><u>Basic principles of chemical and physical properties and reactions of food materials</u></p> <ul style="list-style-type: none"> - Atomic and molecular structures, periodic classification of the elements, and chemical bonding - Acid/base chemistry and chemical reactions of food components <p><u>Basis of food processing and engineering</u></p> <ul style="list-style-type: none"> - Energy and its uses, gas laws and kinetic molecular theory - Elementary chemical thermodynamics and kinetics <p><u>Principles of electrochemistry in rapid food analysis</u></p> <ul style="list-style-type: none"> - Elementary electrochemistry and their application in food analysis <p><u>Role of food in living systems</u></p> <ul style="list-style-type: none"> - Metabolism and nutrient need of cells <ul style="list-style-type: none"> o Cell division, structure and function - Energy generation in plant and animals <p><u>Natural biodiversity and food production</u></p> <ul style="list-style-type: none"> - Genetic and species diversity in food supply

	<div>○ Mechanisms for genetic diversity and speciation</div> <div>- Interaction between species and its environment</div>					
Teaching/Learning Methodology	Lectures are supplemented with videos to provide students with the basic concepts on the subject content. Tutorials are aimed at clarifying material related to lectures and background reading thru problem-based discussion with case study.					
Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
			a	b	c	d
	1. Assignments	20%	√	√	√	√
	2. Quizzes	40%	√	√	√	√
	4. Examination	40%	√	√	√	√
	Total	100 %				
	<i>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</i> Quizzes and assignments will be used to assess the students’ ability to understand the lecture materials, be able to synthesize new knowledge based on the lecture materials. Examination are set to evaluate students’ ability to understand the basic concepts.					
Student Study Effort Required	Class contact:					
	Lecture			26 Hrs.		
	Tutorial			13 Hrs		
	Other student study effort:					
	Self study			65 Hrs.		
	Report Writing			12 hrs		
	Total Study Effort:			119 Hrs		
Reading List and References	Reference Book: Food Science and Technology (2017) 2 nd Ed. G Campbell-Platt. Wiley.					
	The Sciences: An Integrated Approach (2016) 8th Ed. Trefil & Hazen. Wiley					
	Campbell Biology (2021) 12th Ed. Urry & Cain et al. Pearson.					
	General, Organic, & Biological Chemistry, 6th Ed. McGrawHill.					

