

**The Hong Kong Polytechnic University**

**Subject Description Form**

<b>Subject Code</b>	FSN6502
<b>Subject Title</b>	Advanced Topics in Functional Foods and Nutraceuticals
<b>Credit Value</b>	3
<b>Level</b>	6
<b>Pre-requisite</b>	Nil
<b>Objectives</b>	This advanced subject is tailored for professionals and managers in the food industry seeking to enhance their knowledge and expertise in the field of functional foods and nutraceuticals. It will provide a comprehensive understanding of the scientific foundations, advanced knowledge, state-of-the-art technologies and strategic considerations related to functional food and nutraceutical R&D within the context of modern food industry.
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>Comprehend the physiological mechanisms by which functional foods, nutraceuticals and the active constituents exert their effects in the human body;</li> <li>Recognize the cutting-edge research on bioactive constituents in functional foods, such as antioxidants, phytochemicals, probiotics, and prebiotics, and their potential roles in human disease prevention and management, and their mechanisms of action;</li> <li>Understand the design and development of functional food products, including the formulation, processing, and quality control considerations;</li> <li>Critically evaluate the safety and efficacy of health foods and nutraceutical products, as well as their roles in personalized nutrition and precision medicine;</li> <li>Be aware of the governmental regulation frameworks for ethical considerations in sourcing, manufacturing and marketing.</li> </ol>
<b>Subject Synopsis/ Indicative Syllabus</b>	<p><u>Functional Foods and Nutraceuticals: An Introduction</u>            Definition; classification; classical functional components for health promotion and disease prevention; market shares and consumption trends</p>

	<p><u>Scientific Foundations of Functional Foods and Nutraceuticals</u> Physiological effects, bioactive compounds, and mechanisms of action; Link between functional components and medicine; Evidence-based research on the health benefits of functional foods and nutraceuticals</p> <p><u>The Potential of Functional Components in Health Promotion and Disease Management</u> Introduce functional components with a focus on natural antioxidants, phytochemicals, probiotics, and prebiotics</p> <p><u>Product Development and Formulation Strategy</u> Product R&amp;D considerations; Functional and health impact evaluation; Quality control and safety considerations</p> <p><u>Regulatory Issues and Health Claims</u> Understanding the regulatory frameworks and bodies responsible for overseeing functional foods and nutraceuticals in different countries or regions; Definitions, classifications, health claims, labeling, safety and efficacy assessment; Case study in the context of mainland China and Hong Kong’s regulations.</p> <p><u>Ethics in Sourcing, Manufacturing and Marketing, and Future Trends</u> Learn the challenges and opportunities associated with product innovation, intellectual property, and partnerships in the health food sector; Ethical considerations in material sourcing, manufacturing and marketing.</p>
<p><b>Teaching/Learning Methodology</b></p>	<p>The basic contents of this subject will be presented with the aid of lecture notes, video clips, Blackboard platform and other teaching tools. As this is an advance course, lectures will be designed to guide students to link the application of classical and novel function components to the promotion of human health and wellness. In addition, real-world case studies and industry examples will be introduced to illustrate key concepts and stimulate critical thinking. For tutorials, students will engage in interactive discussions, case studies, and practical exercises relevant to their roles in food industry management. By the end of the course, students will have a comprehensive understanding of advanced topics in functional foods and nutraceuticals, enabling them to make informed strategic decisions, drive innovation, and capitalize on the growing market demand for functional food products. Guest speakers from the government and industry sectors will also be invited to deliver seminars on current topics related to health food and nutraceuticals.</p>

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	e	
	1. Class attendance / Tutorial participation	10%	√	√	√	√	√	
	2. Group project presentation	20%					√	
	3. Case study individual report	30%		√			√	
	4. Final assessment - take-home assignment	40%	√	√	√	√	√	
	Total	100 %						
<p><i>*Weighting of assessment methods/ tasks in continuous assessment may be different, subject to each subject lecturer.</i></p> <p><b>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</b></p> <p>The continuous assessment comprises of group project presentation, case study individual report as well as class participation. Assignments will be given to encourage critical thinking among students on current issues related to health food products. Students’ performance in active participation in discussion during tutorial sessions will be assessed. Seminar presentation will be assessed based on their abilities to gather, analyze and organize relevant information and their abilities to orally present the information in a logical manner.</p> <p>Both continuous and final assessments will be used to assess the knowledge acquired by students and their ability to apply such knowledge. Seminar Presentation as well as tutorial participation will be used to assess the abilities of the students to identify major types of health foods and nutraceutical products in the market, their understandings of the scientific basis for the use of these products in health maintenance and disease prevention, as well as their abilities to critically evaluate the safety and efficacy of using health food and nutraceutical products.</p> <p>By the end of the course, students will have a comprehensive understanding of advanced topics in functional foods and nutraceuticals, enabling them to make informed strategic decisions, drive innovation, and capitalize on the growing market demand for functional food products.</p>								
<b>Student Study</b>	Class contact:							

<b>Effort Expected</b>	▪ Lecture	20 Hrs.
	▪ Tutorial	4 Hrs.
	▪ Guest seminar	6 Hrs.
	Other student study effort:	
	▪ Self-study	40 Hrs.
	▪ Preparation for assignments and assessments	50 Hrs
	Total student study effort	120 Hrs.
<b>Reading List and References</b>	<p>John Howlett, 2008, Functional Foods from Science to Health and Claims, International Life Sciences Institute Europe</p> <p>Moghadasian MH &amp; Eskin NAM. 2012 Functional foods and Cardiovascular disease. CRC Press:Boca Raton, FL, USA</p> <p>Sattigere VD et. al. 2018 Science-based regulatory approach for safe nutraceuticals. J Sci Food Agric (wileyonlinelibrary.com) DOI 10.1002/jsfa.9381</p> <p>Jane Higdon, and Victoria J. Drake, 2012 Evidence-Based Approach to Phytochemicals and Other Dietary Factors. 2nd Edition. Thieme Publishing Group, New York, NY, USA.</p>	