The Hong Kong Polytechnic University

Subject Description Form

Subject Code	FSN6507
Subject Title	Scientific Research Analysis and Design
Credit Value	3
Level	6
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject contributes to the achievement of the DFSM outcome by sharpening students' ability to conduct original applied research and ethical awareness in food science and management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. To understand the basic concepts and key processes to conduct empirical research in food and nutritional sciences 2. Critically analyze and evaluate published findings and articles in academic research 3. To achieve the skills required for establishing a doctoral-level research proposal, possibly on fields such as food technology and entrepreneurship.
Subject Synopsis/ Indicative Syllabus	a. Introduction to scientific research and philosophy of science b. Research process including research design, hypothesis, ethics, scientific approaches, as well as publish manuscripts in journal. c. Major research methodologies in food science and management including statistical skills, quantitative and qualitative research.
Teaching/Learning Methodology	The course will be based on a series interactive lectures, discussions and exercises. Lectures: To provide key knowledge and concepts to comprehend, evaluate and critique scientific research. Areas covered include research design and methodologies, analytical techniques, ethical considerations, potential application and utility of research. Discussions: Discussion material packs will be provided to students. Students will be encouraged to read scientific research papers and/or patents together and hold discussions over aspects above that are covered in the lectures. Students will be asked to share their views regularly to the class. Exercises: To help students to understand scientific research methodologies and to assess their understanding, in-class exercises will be used to guide them on the thinking process step by step. This will be crucial to prepare students for their own research work later in the degree programme.

<table>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
		a	b	c
1. Individual assignments	50 %	✓	✓	✓
2. Group presentation	30 %	✓	✓	✓
3. Reflective essay	20 %	✓		
Total	100 %			

**Weighting of assessment methods/ tasks in continuous assessment may be different, subject to each subject lecturer.*

Individual assignments

Students are required to apply their knowledge on the principles of research methods in food science and management, and assess the quality of research evidence from research studies, in individual assignment as offered by each subject lecturer.

Group presentation

Students are required to conduct a group presentation on a recent food science topic and use research to evaluate scientific soundness of the science/technology.

Reflective essay

Students are required to reflect on ethical awareness in food science and management, as well as how they can apply the research techniques they have learned in this course to their own research.
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<tr><td>Student Study Effort Expected</td><td>

Class contact:	
▪ Lecture/seminar/workshop/oral presentation	39 Hrs.
Other student study effort:	
▪ Lectures preparation	30 Hrs.
▪ Assignment / essay preparation	60 Hrs.
Total student study effort	129 Hrs.
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Reading List and References	Recommended Textbooks Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage. Cook, T. D., Campbell, D. T., & Shadish, W. (2002). Experimental and quasi-experimental designs for generalized causal inference (Vol. 1195). Boston, MA: Houghton Mifflin. Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). Management research. Sage. Yin, R. K. (2018). Case Study Research and Applications: Design and Methods. 6th Edition. Sage Gummesson, E. (2000). Qualitative methods in management research. Sage. Pomeranz, Y. (Ed.). (2013). Food analysis: theory and practice. Springer Science & Business Media. For those who can read Chinese: 陈晓萍 & 沈伟, 2018. 组织与管理研究的实证方法（第三版）北京大学出版社：北京。