The Hong Kong Polytechnic University

Subject Description Form

Subject Code	FSN4425
Subject Title	Environmental Health and Food Sustainability
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	FSN2416 Introduction to Food Science
Objectives	This subject aims to introduce students with the concepts of food sustainability and its relationship with the environmental and ecological processes. Impacts of agriculture and fisheries on the environment are discussed, along with the current managerial approaches to ensure the sustainable development of food growing, processing and supply.
Intended Learning Outcomes	Upon completion of this subject, students will be able to: a. realise food sustainability as a multidisciplinary topic that involves environmental, ecological, nutritional and social sciences; b. have a better understanding of the agricultural and fishery practices, their impacts on the environment and vice versa; c. define ecosystems, which comprise interactions among food species, other species and the environment; d. aware that food production is part of the ecosystem services and is largely dependent on environmental health; and e. appreciate the importance of environmental and biodiversity conservation to food sustainability.
Subject Synopsis/ Indicative Syllabus	This subject covers five closely interconnected topics, namely, 1. terrestrial and aquatic environments, and their physical and chemical processes such as cycling of water and nutrients. The environmental qualities are fundamental to the sustainability of food production systems; 2. agriculture and fisheries, two main food production systems to sustain human societies. However, some of these practices such as deforestation for farmland and overfishing adversely impact the environment; 3. ecosystems and biodiversity, which describe interactions among species and their adaptation to the environment. Major ecosystems such as coral reefs that support biodiversity and food sustainability are discussed;

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<tr><td></td><td>4. threats to ecosystems and their services, which include global climate change and ocean acidification, along with different types of pollution that cause food safety concerns; and
5. approaches to food sustainability, for example through biodiversity conservation, food waste reduction, and novel food production in the face of environmental changes.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Interactive lectures will facilitate students' learning of key concepts of environmental health and food sustainability, and promote communication between teachers and students. Tutorials will include small group discussion on relevant topics to enhance knowledge exchange and students' awareness of recent environmental and food insecurity issues. Students will further research into these topics through an individual essay, and as a team in the group project and share their findings in class. Students' performance will also be assessed by a test on the taught materials.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="5">Intended subject learning outcomes to be assessed (please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>1. Individual essay</td><td>30 %</td><td>✓</td><td></td><td></td><td>✓</td><td>✓</td></tr>
<tr><td>2. Group project</td><td>40 %</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>3. Test</td><td>30 %</td><td></td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="5"></td></tr>
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Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes

The assessment of this subject comprises both formative and summative parts. To ensure that students learn and reflect continuously, we use a continuous assessment which contains three components including an individual essay, a group project and a test. The individual essay will be assessed using the Biggs' Structure of the Observed Learning Outcome (SOLO) taxonomy, which will allow us to identify where students find difficulties, if any, and address the problems accordingly. The group project will provide an opportunity for students to experience the research process and develop science communication skills. The essay and project are both comprehensive in nature and will encourage students to apply the knowledge gained in class to real-world issues. For the summative part, a test will be used to evaluate students' level of understanding and provide higher-order thinking questions to assess students' problem-solving skills.</td></tr>
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Student Study Effort Expected	Class contact:	
	▪ Lecture	30 Hrs.
	▪ Tutorial	9 Hrs.
	Other student study effort:	
	▪ Preparation for the essay and project	49 Hrs.
	▪ Self-study and preparation for the test	27 Hrs.
	Total student study effort	115 Hrs.
Reading List and References	Reference Reading List: Naeem, S., Lipton, S., & Huysen, T. van. (2021). Sustainable food production : an Earth Institute sustainability primer. Columbia University Press. Galanakis, C. M. (2018). Sustainable food systems from agriculture to industry : improving production and processing (C. M. Galanakis, Ed.). Academic Press. FAO SDG: https://www.fao.org/sustainable-development-goals/en/ Learning materials will be provided in class.	