

Subject Description Form

Subject Code	ABCT 1D08
Subject Title	Food Safety: From Farm to Fork
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Food safety has received increasing attention worldwide in recent years. Poor food safety can result in a variety of consequences on human health and food trading. This subject aims to introduce the principles and importance of food safety in our society.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> 1. understand the principles and importance of food safety 2. realize food safety issues in food supply chains 3. appreciate the benefits of good food safety practice and the consequences of food safety problems 4. demonstrate analytical and critical thinking 5. realize the social/national responsibility in food production 6. demonstrate lifelong learning and teamwork skills <p><u>Literacy:</u> In addition to learning from lecture materials, students will be encouraged to learn more by reading relevant textbooks and acquire up-to-date knowledge on food safety issues from news articles and governments' official reports (e.g. the Chinese government, Centre for Food Safety (Hong Kong), the U.S. government, and European Commission). These materials will also be discussed in lectures/tutorials to strengthen their learning (learning outcome 1–3). Students will also be required to write their lab reports after lab classes. Guidelines will be given to students for preparing their lab reports (e.g. objectives, introduction, methodology, results, discussion, conclusions, and references). Lab reports preparation provides an important way for students to build up independent analytical thinking, and present and discuss their findings in a scientific and organized way.</p> <p><u>Higher order thinking:</u> Higher order thinking development (e.g. analytical and critical thinking) is an important training task in this course. Case studies on food safety</p>

	<p>are excellent ways to achieve this purpose. Students will be given topics on food safety issues. Students will be required to identify problems, analyze their causes and effects, and propose possible approaches for preventing/resolving the problems (e.g. in tutorials and group presentation). Such studies will provide a complete set of training on higher order thinking, which is useful to students in their future personal and career development (learning outcome 4). Case studies will also allow students to realize the consequences of food safety problems. These studies will help students build up a strong sense of social/national responsibility in food production (learning outcome 5).</p> <p><u>Lifelong learning:</u> Continuous learning on food safety is an important subject to the whole society, because food incidents occur constantly every year. The general public needs to acquire up-to-date food safety information from news reports and the government. In addition, food producers also need to update themselves with the latest food safety information/regulations to avoid food safety problems and improve the quality of their food products. In this subject, the importance of lifelong learning will be highlighted by a case study on acrylamide. Acrylamide has long been known as a carcinogen, but recent studies have shown that this harmful chemical can be produced in our traditional food processing (e.g. frying). This recent alarming discovery has attracted increasing attention on the health risk of foods with acrylamide and the need of improvement of existing food processing technologies for reducing acrylamide production. The acrylamide story represents a good example to demonstrate to students that improving food safety requires continuous research and learning from the academia, the food industry and the general public (learning outcome 6).</p> <p><u>Teamwork and communication:</u> Both group presentation and lab work require the cooperation of group members. These tasks will help students develop the spirit of teamwork and develop their teamwork skills (learning outcome 6).</p>
<p>Subject Synopsis/ Indicative Syllabus</p>	<p>(a) Basic Principles of Food Safety</p> <ul style="list-style-type: none"> - Introduction of food types - Overview of food supply chains - Introduction of different food hazards and their possible harmful effects: chemical hazards, biological hazards, and physical hazards <p>(b) Food Safety Problems: Causes and Effects</p> <ul style="list-style-type: none"> - Food safety concern: from raw food materials to food products - Environmental pollution and food safety: is there a relationship? - Food safety issues in food processing, packaging and storage - Misuse and abuse of chemicals in food production:

	<p>the social and national responsibility of food producers</p> <ul style="list-style-type: none"> - Consequences of poor food safety: from human health to food trading - Food safety management: benefits of good food safety practice and consequences of food safety problems <p>(c) Continuous learning: an essential approach to improving food quality and safety</p> <ul style="list-style-type: none"> - The story of acrylamide: its discovery in fried foods and impacts on food processing development
<p>Teaching/Learning Methodology</p>	<p><u>Lectures:</u> Students will learn the basic knowledge of food supply chains and food safety in lectures. The importance of food safety as well as the causes and effects of food safety problems will be discussed. Students will be encouraged to learn more by reading textbooks, reference books, literature, and official reports from governments (self study). The materials from these sources will also be discussed in lectures.</p> <p><u>Tutorials:</u> Real cases on food safety will be discussed in tutorials. Students will identify the problems in the cases, investigate their causes and effects, and suggest possible approaches for preventing/resolving the problems. Such studies will also allow students to strengthen and apply what they have learnt in lectures.</p> <p><u>Group projects:</u> Students will form groups, and each group will be given a topic on food safety. Group members will work together to do information search, information analyses and presentation of their findings (group project presentation). Each group member will also be required to submit an individual report to present and discuss his/her findings (individual group project report).</p> <p><u>Laboratory work:</u> Students will do simple experiments in groups in practical classes. Group members will need to cooperate in their practical work (e.g. determination of salt content in food). The practical work will enable students to develop teamwork skills. Students will also be required to submit individual lab reports. Students will analyze their results and present and discuss their findings in their lab reports.</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)					
		1	2	3	4	5	6
Test	40%	✓	✓	✓	✓		
Laboratory work	20%						✓
Group project presentation	20%				✓	✓	✓
Group project report	20%				✓	✓	✓

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Test:

Test is a good means for assessing the basic food safety knowledge and the higher order thinking of each individual student. Test questions will be designed to test the extent of understanding of lecture materials (learning outcome 1 – 3). Test questions will also be designed in such a way that students will need to apply their analytical and critical thinking skills to solve problems (learning outcome 4).

Laboratory work:

Students will work in groups to do experiments. Group members will need to cooperate with each other in order to complete their practical work. Thus, the laboratory classes can help students build up their teamwork spirit and develop their teamwork skills (learning outcome 6).

Group project presentation and reports:

Students will need to search for information by different ways (e.g. official reports from governments) as well as understand and analyze their information in their group projects. The analytical thinking and lifelong learning skills of students can be, therefore, developed during the preparation of group projects (learning outcome 4 and 6). Moreover, students will learn the consequences of food safety problems and therefore realize the importance of fulfilling the social/national responsibility in food safety practice (learning outcome 5). The assessment of these learning outcomes (4–6) can be done on the basis of individual group project reports. Group project presentation will also require the coordination and cooperation of group members. Thus, group project presentation is a good means for assessing the teamwork skills of students (learning outcome 6).

**Student Study
Effort Expected**

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
▪ Laboratory	9 Hrs.

	Other student study effort:	
	<ul style="list-style-type: none"> ▪ Preparation of presentation and reports ▪ Self-study <p>(e.g. reading literature, reports, publications and textbooks)</p>	<p>16 Hrs.</p> <p>60 Hrs.</p>
	Total student study effort	124 Hrs.
Reading List and References	<ol style="list-style-type: none"> 1. Lecture notes and supplementary materials (for some special topics) will be given. 2. <i>Food Safety Fundamentals: Essentials of Food Safety and Sanitation</i>, David McSwane, Nancy R. Rue, Richard Linton, Anna Graf Williams, Pearson/Prentice Hall, 2004. 3. <i>Food Safety for the 21st Century: Managing HACCP and Food Safety Throughout the Global Supply Chain</i>, Carol A. Wallace, William H. Sperber, Sara E. Mortimore, Publisher Aimes, Iowa: Blackwell Publisher, 2011. 4. Up-to-date official reports on food safety (in Chinese/English): <ul style="list-style-type: none"> http://www.nfqs.com.cn/ (中国国家食品安全网) http://www.cfs.gov.hk/eindex.html (Centre for Food Safety) http://www.fda.gov/ (U.S. Food and Drug Administration) http://ec.europa.eu/food/index_en.htm (European Commission) 5. Up-to-date publications / reports / information on food safety: <ul style="list-style-type: none"> http://www.food.gov.uk/ (Food Standards Agency) 6. <i>A Guide to Scientific Writing</i>, 2nd edition, Lindsay, D. R., Longman, 1995. 	