

Course Syllabus

**offered by Department of Chemistry
with effect from Semester A 2021/22**

This form is for the completion by the Course Leader. The information provided on this form is the official record of the course. It will be used for the City University's database, various City University publications (including websites) and documentation for students and others as required.

Please refer to the Explanatory Notes on the various items of information required.

Prepared / Last Updated by:

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**City University of Hong Kong
Course Syllabus**

**offered by Department of Chemistry
with effect from Semester A 2021/22**

Part I Course Overview

Course Title:	The Chemists Kitchen (The science of food and cooking)
Course Code:	GE1346
Course Duration:	1 semester
Credit Units:	3 credits
Level:	B1
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input checked="" type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course allows students to discover food and cooking from a scientific point of view with an emphasis on ways to cook better and to have a healthy life. The course material includes some introduction to biology and chemistry. Topics such as food selection, food evaluation and food composition are included. Methods of cooking different foods, such as eggs, meat, poultry, fish and shellfish, are discussed using a scientific perspective. Teaching and learning activities in this course include lectures, tutorial demonstrations, laboratory experiments, short projects and food tasting experiments that will enhance the students' discovery of important scientific issues related to food and cooking. This course will assist students to develop an appreciation of science through cooking, and vice versa.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Describe, discuss and explain the basic component and structure of food and the sensory system of humans.	20%	✓	✓	✓
2.	Apply science principles learnt to describe, discuss and explain how cooking changes the texture and taste of food.	30%	✓	✓	✓
3.	Demonstrate self-directed learning ability to explore various preparation and cooking methods for different foods and evaluate their effects.	30%	✓	✓	✓
4.	Demonstrate critical thinking skills to evaluate scientific and social aspects of food and cooking, such as molecular gastronomy, genetically modified food and effects on nutrition and diet.	20%	✓	✓	✓
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lectures and tutorial discussions	Interactive lectures, tutorial discussions to explain the scientific aspects of food and cooking.	✓	✓	✓	✓	3 hrs/wk for 8 weeks
Group presentation and oral quiz	Interactive poster and video projects to enhance students' discovery of food and cooking.	✓	✓	✓	✓	One 10-minute group presentation (2 to 3 students)
Guest lectures	Guest lectures by Chefs from the local food industry to illustrate social and scientific issues of food and cooking.	✓	✓	✓	✓	One 2-hour lecture
Laboratory experiments	Through laboratory experiments, students will discover and critically evaluate important current issues of food and cooking such as genetically modified food, diet, nutrition and molecular gastronomy.		✓	✓	✓	2 hrs/wk for 4 weeks

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.				Weighting*	Remarks
	1	2	3	4		
Continuous Assessment: <u>60%</u>						
Group presentation and oral quiz (two to three students in a group to explain to peers the science behind a dish of students' own choice; the presentation last for 10 minutes, including an oral presentation to illustrate the relevant science principles of the dish and a video clip to demonstrate the key preparation / cooking processes of the dish and address questions raised by peers and instructors)	✓	✓	✓	✓	40%	
Laboratory work sheet (4 laboratory experiments; each with a work sheet to be handed in at the end of the laboratory session)		✓	✓		20%	
Examination: <u>40%</u> (duration: 2 hours)						
* The weightings should add up to 100%.					100%	

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for courses offered by CHEM:

"A minimum of 40% in both coursework and examination components."

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Group presentation and oral quiz	Student demonstrates grasp of the important scientific concepts to various aspects of the topic concerned, and can apply these concepts to solve problems with clear and logical explanations. Evidence of demonstrated use of concepts for rationalization, with some originality in thought and argument. Displays presentation skills.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Laboratory work sheet	Student demonstrates grasp of the important scientific concepts to the topic concerned. Evidence of demonstrated use of concepts for rationalization. Displays writing skills.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Examination	Student demonstrates grasp of the important scientific concepts to various aspects of the topic concerned, and can apply these concepts to solve problems with clear and logical explanations. Evidence of demonstrated use of concepts for rationalization, with some originality in thought and argument.	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

Week	Topic
1	Chemistry of food components
2	Sensation and food
3	Cooking methods and their effects on food from a scientific perspective (Experiment 1)
4	Importance of oil and water in food preparation (Experiment 2)
5	Seafood
6	Vegetables and fruit
7	Meats (pork, beef, poultry) (Experiment 3)
8	Eggs (Experiment 4)
9	Pasta and noodles
10	Preparation of tofu, jelly, thickened food, etc. from liquid food and their chemistry
11	Chemistry of baking
12-13	Group presentation

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	
2.	
3.	
...	

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Understanding Food: Principles and Preparation, 5 th edition, Amy Brown, Cengage Learning, 2015.
2.	On Food and Cooking: The Science and Lore of the Kitchen, McGee, Harold, New York: Scribner, 2004.
3.	The Science of Good Cooking, The Editors of America's Test Kitchen and Guy Crosby, Cook's Illustrated, 2012.
4.	Essentials of Food Science, Vickie A. Vaclavik, Elizabeth W. Christian, New York, NY: Springer 2014.
5.	http://www.seas.harvard.edu/cooking
6.	http://www.seas.harvard.edu/cooking/cooking_2011
7.	http://www.seas.harvard.edu/cooking/science-and-cooking-2012-lecture-series
8.	http://www.exploratorium.edu/cooking/index.html

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)
PILO 1: Demonstrate the capacity for self-directed learning	CILOs 1, 2, 3 and 4
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	CILOs 1, 2, 3 and 4
PILO 3: Demonstrate critical thinking skills	CILOs 1, 2, 3 and 4
PILO 4: Interpret information and numerical data	CILOs 1, 2, 3 and 4
PILO 5: Produce structured, well-organised and fluent text	CILOs 1, 2, 3 and 4
PILO 6: Demonstrate effective oral communication skills	CILOs 1, 2, 3 and 4
PILO 7: Demonstrate an ability to work effectively in a team	CILOs 1, 2, 3 and 4
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	
PILO 9: Value ethical and socially responsible actions	CILO 4
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	CILOs 1, 2, 3 and 4

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task
Poster and video presentation