City University of Hong Kong
Course Syllabus

offered by Department of Chemistry
with effect from Semester B 2017/18

Part I Course Overview

Course Title:	**The Science of Cosmetics**
Course Code:	**GE2333**
Course Duration:	**1 semester**
Credit Units:	**3**
Level:	**B2**
Proposed Area: *(for GE courses only)*	Arts and Humanities Study of Societies, Social and Business Organisations ✓ Science and Technology
Medium of Instruction:	**English**
Medium of Assessment:	**English**
Prerequisites: *(Course Code and Title)*	**Nil**
Precursors: *(Course Code and Title)*	**Nil**
Equivalent Courses: *(Course Code and Title)*	**Nil**
Exclusive Courses: *(Course Code and Title)*	**Nil**

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course allows students to discover social and scientific concepts of human beauty, with an emphasis on ways to live a healthy life. The course material includes some introduction to basic chemistry and biology related to cosmetic products. Issues related to (1) human perception and concepts of beauty, (2) the history and science of cosmetics and (3) the safety of cosmetics, will be discussed. Apart from interactive lectures and tutorials, students will learn some simple experimental techniques through making their own cosmetics (gloss lipstick, hair cream, moisturizing serum and sun block) in the four laboratory sections. Students will also know explore various aspects of the cosmetic industry through the guest lecture by representatives from the international cosmetics industry. At the end of the semester, students are required to give a group presentation on a topic related to cosmetic use and production.

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.	Explain the human perception system	20%	√	√	
2.	Compare and contrast the concept of beauty over time and between different cultures	20%	√	√	
3.	Explain the basic chemistry and biology behind the production and use of cosmetics	30%	√	√	√
4.	Explain the pros, cons, and potential implications and effects of using various cosmetics in terms of chemical and biological concepts	15%	√	√	√
5.	Analyze safety issues related to the use of cosmetics	15%		√	
		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	5		
Lecture	Interactive lectures and tutorial discussions to enable students to discover the cultural, social, and scientific aspects of human beauty	√	√	√	√	√		3 hrs/wk
Group Project	Interactive poster and video projects to enhance students' discovery of the use, production and safety of cosmetic-related products	√	√	√	√	√		3 hrs/wk for 2 weeks
Guest Lecture	Lecture by a representative from the international cosmetics industry to illustrate social and scientific issues related to cosmetic products		√	√	√	√		One 2-hr lecture
Laboratory experiments / demonstrations	Laboratory experiments /demonstrations to illustrate the production and safety of cosmetic products			√	√	√		3 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	5			
Continuous Assessment: 70%								
Quizzes and Assignments	√	√	√	√	√		30%	
Laboratory Report Write-up			√	√	√		20%	
Group Project and Presentation	√	√	√	√	√		20%	
Examination: 30% (duration: 1 hr)								
** The weightings should add up to 100%.*							100%	

Details:

(1) Quizzes and Assignments: students need to finish short quizzes and assignments as a form of continuous assessment;
(2) Laboratory reports: students need to hand in a short laboratory report (two pages) after each laboratory section as a form of continuous assessment;
(3) Group project and presentation: Students will form groups of 3–4 and will select a topic related to the use, production, and safety of cosmetic related products; they will design an informational poster that is aimed at their fellow students, including presenting their topic and poster in a 10-minute presentation in class.

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. Quizzes and Assignment		Demonstrates excellent grasp of the important concepts to various aspects of the topic covered in this course, and can apply these concepts to solve problems with clear and logical explanations.	Able to describe and explain the important concepts to several aspects of the topic covered in this course.	Student completes most of the assessment tasks and can describe some key elements on the topics covered in the course. Shows limited ability to apply concepts.	Student has little participation and interest, and demonstrates limited ability in analysis.	Student has no participation, interest or original thought.
2. Laboratory Report Write-up		Demonstrates excellent grasp of the important concepts to various aspects of the topic covered in the laboratory sessions. Reports are well-written with clear and logical explanations.	Able to describe and explain the important concepts to several aspects of the topic covered in the laboratory sessions.	Student completes most of the assessment tasks and can describe some key elements on the topics covered in the course. Shows limited ability to apply concepts.	Student has little participation and interest, and demonstrates limited ability in analysis.	Student has no participation, interest or original thought.
3. Group Project and Presentation		Excellent logical structure with coverage and relevance. The	Good logical structure with coverage and relevance. The	Acceptable logical structure with coverage and relevance. The work	No structure with no/little coverage and relevance. Very easy to find mistakes in the	Zero contribution in the whole presentation, including information

		work is presented in an accurate and concise fashion. Fluent language with a formal tone. Good timing. Provides detailed answers to all questions.	work is presented in an accurate fashion. Appropriate use of language. Good timing. Can answer all questions in detail.	is presented in an acceptable fashion. Reading from single-page notes or cue cards. Either too short or overruns by only one to two minutes. Can answer most questions.	presented work. Very poor timing Fails to answer most questions and has difficulty understanding many of them.	research, data processing, preparation works and presentation.
4. Examination		Demonstrates a deep understanding of selected topic and able to critically analyse the issues of the question.	Demonstrates a good understanding of selected topic and able to reasonably analyse the issues of the question.	Demonstrates a limited understanding of selected topic and does not go beyond a standard description of the issues of the question.	Demonstrates a weak understanding of selected topic and presents limited perspective of the topic.	Does not present evidence of a reasonable understanding of the question and omits key issues of the question.

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	Lecturer
1	What is beauty?	Dr. C.-Y. Wong (CHEM)
2	The science of sensation and perception	Dr. H. Y. Sun (CHEM)
3	The structure of human tissue and hair	Dr. H. Y. Sun (CHEM)
4-6	Chemistry of important components in cosmetics (e.g. solvents, surfactants, fragrances, antioxidants, emollients, emulsifiers, humectants, etc.)	Dr. C.-Y. Wong (CHEM)
7	Making your own cosmetics (Experiment 1: Gloss Lipstick)	Dr. C.-Y. Wong (CHEM)
8	Making your own cosmetics (Experiment 2: Hair Cream)	Dr. C.-Y. Wong (CHEM)
9	Making your own cosmetics (Experiment 3: Moisturizing Serum)	Dr. C.-Y. Wong (CHEM)
10	Making your own cosmetics (Experiment 4: Sun Block)	Dr. C.-Y. Wong (CHEM)
11	Selected topic by guest lecturer	Guest Lecturer
12	Group presentation	
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.)

Beginning Cosmetic Chemistry 3rd Edition (ISBN-13: 978-1932633535)

2.2 Additional Readings

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

Chemistry and Manufacture of Cosmetics: Science 4th edition (ISBN-13: 978-1932633474)

* The above readings have been ordered and will be deposited in the CityU library.

Annex
(for GE courses only)

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

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
Group project and presentation on a selected topic related to cosmetic use and production, and the cultural and social aspects of human beauty.