

Course Syllabus

**offered by Department of Chemistry
with effect from Semester A 2020/21**

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 2020/21**

Part I Course Overview

Course Title:	Cosmetic Chemistry
Course Code:	CHEM3083
Course Duration:	1 semester
Credit Units:	3 credits
Level:	B3
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 type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	CHEM2006/BCH2006 Principles of Inorganic Chemistry CHEM2007/BCH2007 Principles of Organic Chemistry
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	BCH3083 Cosmetic Chemistry
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 the chemistry and manufacture of cosmetics. More specifically, this course aims to introduce the most important scientific aspects of cosmetics including the chemistry, physics, and biological functions of different cosmetic ingredients (solvents, emulsifiers, surfactants, emollients, oils, waxes, humectants, fragrances, additives, etc). Apart from interactive lectures, tutorials and group projects, there are four laboratory sessions in which students will learn to make cosmetic formulations (brightening serum, gentle shampoo, moisturizing day cream and gloss lipstick). This course is co-developed with the Hong Kong Society of Cosmetic Chemists (HKSCC). Guest lecturers from HKSCC will deliver about half of the lectures, and each student will obtain a certificate of attendance from HKSCC after successful completion of the course.

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.	Identify the need for cosmetics in modern society	5%	✓	✓	
2.	Explain the need and working principles for different cosmetic ingredients	40%		✓	✓
3.	Discover and explain the rationale behind different cosmetic formulation	40%		✓	✓
4.	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	
Lectures	Interactive lectures on the basic concepts of cosmetic ingredients and formulations	✓	✓	✓	✓	2 hrs/week for 8 weeks
Tutorials	Interactive discussion on the design of cosmetic formulations		✓	✓	✓	2 hrs/week for 8 weeks
Group Project	Interactive poster and video projects to enhance students' discovery of the use, production and safety of cosmetic-related products	✓	✓	✓	✓	4 hrs/week for 1 week
Laboratory Session	Laboratory experiments /demonstrations to illustrate the production of cosmetic products		✓	✓	✓	4 hrs/week 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>						
Quizzes and Assignments	✓	✓	✓	✓	20%	
Laboratory Report Write-up		✓	✓	✓	25%	
Group Project and Presentation	✓	✓	✓	✓	15%	
Examination: <u>40%</u> (duration: 2 hours)						
					100%	

* The weightings should add up to 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. 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 work is presented in an accurate and concise fashion. Fluent language with a formal tone. Good timing. Provides detailed answers to all questions.	Good logical structure with coverage and relevance. The work is presented in an accurate fashion. Appropriate use of language. Good timing. Can answer all questions in detail.	Acceptable logical structure with coverage and relevance. The work 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.	No structure with no/little coverage and relevance. Very easy to find mistakes in the presented work. Very poor timing. Fails to answer most questions and has difficulty understanding many of them.	Zero contribution in the whole presentation, including information 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	The science of beauty and introduction to cosmetic chemistry (Class description: introduction to the world of cosmetic chemistry, the balance between aesthetics and sciences, types of cosmetics)	Dr. C.-Y. Wong (CHEM)
2	Skin & hair biology for cosmetics (Class description: brief discussion of skin and hair biology and how cosmetics work to improve appearance)	Guest lecturer from HKSCC
3	Fine chemicals for cosmetic: solvent, emulsifiers, surfactants, emollients, oils, waxes, humectants, fragrances, additives and beyond (Class description: brief review of commonly used chemicals in cosmetic sciences)	Guest lecturer from HKSCC
4	Formulating cosmetics: aqueous and surfactant systems in theories (Class description: introduction and studies of aqueous and surfactant type formulations, their use and preparation)	Guest lecturer from HKSCC
5	Formulating cosmetics: aqueous systems in practice (Experiment I: making of brightening serum) (Class description: laboratory session to study a basic serum formulation and make the formulation in small group)	Dr. C.-Y. Wong (CHEM)
6	Formulating cosmetics: aqueous systems in practice (Experiment II: making of gentle shampoo) (Class description: laboratory session to study a basic surfactant cleansing preparation and make the formulation in small groups)	Dr. C.-Y. Wong (CHEM)
7	Formulating cosmetics: emulsion systems in theories (Class description: introduction and studies of emulsions for cosmetic. A brief discussion of basic emulsion types, including W/O, O/W and W/Si.)	Guest lecturer from HKSCC
8	Formulating cosmetics: emulsion systems in practice, (Experiment III: making of moisturizing day cream) (Class description: laboratory session to study an emulsion in practice and make a moisturizing day cream)	Dr. C.-Y. Wong (CHEM)
9	Formulating colour cosmetics: solid systems and other specialty products (Class description: general discussion of colour cosmetics and its fundamentals. Review of dispersion, material structure and pigments. Brief touch on other types of cosmetics and their chemistry)	Guest lecturer from HKSCC
10	Formulating colour cosmetics: solid systems in practice, (Experiment IV: making of a gloss lipstick) (Class description: laboratory session to study a solid cosmetic and make a gloss lipstick)	Dr. C.-Y. Wong (CHEM)
11	Importance of cosmetic safety and assessment (Class description: the study of safety and assessment on cosmetic chemistry)	Guest lecturer from HKSCC
12	Group presentation	Dr. C.-Y. Wong (CHEM)
13	Summary and revision	Dr. C.-Y. Wong (CHEM)

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.	Beginning Cosmetic Chemistry 3rd Edition (ISBN-13: 978-1932633535)
2.	
3.	
...	

2.2 Additional Readings

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

1.	Chemistry and Manufacture of Cosmetics: Science 4th edition (ISBN-13: 978-1932633474)
2.	

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	
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	
PILO 4: Interpret information and numerical data	
PILO 5: Produce structured, well-organised and fluent text	
PILO 6: Demonstrate effective oral communication skills	
PILO 7: Demonstrate an ability to work effectively in a team	
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	
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	

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