

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**

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with effect from Semester A 2020/21**

Part I Course Overview

Course Title:	Selected Topics in Chemistry
Course Code:	CHEM4041
Course Duration:	1 semester
Credit Units:	4 credits
Level:	B4
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>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	BCH4041 Selected Topics in Chemistry
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This is an advanced course on a contemporary topic or group of topics in Pure and/or Applied Chemistry, with examples including catalysis chemistry, materials chemistry, green chemistry and advanced analytical techniques for modern chemistry research. The topic will be announced in advance when this course is offered. It will provide a useful supplement to the advanced courses already specified in the programme.

This course aims to enable the students to achieve the following objects:

- Identify and explain, to an appropriate extent, the real-world and technological importance/relevance of the subject matters covered in a traditional chemistry undergraduate curriculum;
- Describe the selected experimental and theoretical principles of Chemistry and its applied ramifications;
- Apply such principles to structural analysis and property studies of the selected molecules/materials in combination with analytical or environmental procedures in Chemistry;
- Compare and relate the selected topics with the ones in General Chemistry and generate the conceptual links between the two fields, in order to establish a broader perspective on these foundational topics.

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.	Carry out basic analysis of the concepts and reactions/processes in the selected areas of modern chemistry.			✓	
2.	Select or design an appropriate instrumental procedure for a structure/property analysis, and reliably implement it with accuracy and precision.			✓	✓
3.	Critically evaluate experiments/processes in the selected topics in the Chemical literature and effectively communicate this knowledge within their special study fields.			✓	✓
4.	Identify and uphold the social responsibilities of chemists, with particular concern for safety and environmental problems in the context of Modern Chemistry.		✓		✓
		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 tutorials	Teaching and learning will be based on a combination of lectures and tutorials to elucidate the approaches of modern chemistry research and its technological impacts.	✓				
Case studies	Teaching and learning will primarily engage the students in the case studies of the important types of chemical structures/processes, with visual assistance from computerized programs and real-object models.		✓			
Group activities	Teaching and learning will primarily involve large and small group activities examining various molecules/materials/procedures, and the implications in modern technology development. Team work is emphasized in the form of group presentation of selected projects.			✓		
Teacher-student interaction and supervised in-depth discussion	Teaching and learning will entail extensive teacher-student interaction and supervised in-depth discussion among the students, in order to foster independent and critical thinking of the students.				✓	

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>30%</u>						
Tutorial Assignments	✓	✓			15%	
Oral Presentations			✓		10%	
Performance in Teacher-student Interaction				✓	5%	
Examination: <u>70%</u> (duration: 3 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. Tutorial Assignments	<ul style="list-style-type: none">Understand the basic concepts in the lecturesAble to analyse and explain reactions in modern chemistry research and the relevant technological impacts	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Oral Presentations	<ul style="list-style-type: none">Able to evaluate chemical processes in the literatureProfessionally present key points of learningEffectively communicate information orally	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Performance in Teacher-student Interaction	<ul style="list-style-type: none">Active participation in class discussionsActive participation in group activitiesAble to raise well-thought questions in class	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Examination	<ul style="list-style-type: none">Understand the key points in the lectures and tutorialsAble to apply learning to analyse and solve problemsAble to expand on learning and formulate new ideas	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.)

Organic chemistry, inorganic chemistry, chemistry and society, industrial, biological and environmental importance of chemistry, catalysis, luminescent and functional materials, characterization and analytical techniques, physical principles concerning the selected topics.

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.	
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