香港城市大學
City University of Hong Kong

SYL-TPG (Interim)

Course Syllabus

offered by Department of Chemistry with effect from Semester A 2022/23

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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Part I Course Overview

Course Title:	Selected Topics in Chemistry & Molecular Sciences
Course Code:	CHEM6125
Course Duration:	1 semester
Credit Units:	3 credits
Level:	P6
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 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, chemical biology 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 postgraduate 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.		✓		✓
	** If weighting is assigned to CILOs, they should add up to 100%.*	100%			

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: 30%						
Tutorial Assignments	✓	✓			15%	
Oral Presentations			✓		10%	
Performance in Teacher-student Interaction				✓	5%	
Examination: 70% (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.)

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Tutorial Assignments	• Understand the basic concepts in the lectures • Able to analyse and explain reactions in modern chemistry research and the relevant technological impacts	High	Significant	Basic	Not even reaching marginal level
2. Oral Presentations	• Able to evaluate chemical processes in the literature • Professionally present key points of learning • Effectively communicate information orally	High	Significant	Basic	Not even reaching marginal level
3. Performance in Teacher-student Interaction	• Active participation in class discussions • Active participation in group activities • Able to raise well-thought questions in class	High	Significant	Basic	Not even reaching marginal level
4. Examination	• Understand the key points in the lectures and tutorials • Able to apply learning to analyse and solve problems • Able to expand on learning and formulate new ideas	High	Significant	Basic	Not even reaching marginal level

Applicable to students admitted before Semester A 2022/23

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Tutorial Assignments	• Understand the basic concepts in the lectures • Able to analyse and explain reactions in modern chemistry research and the relevant technological impacts	High	Significant	Moderate	Basic	Not even reaching marginal level
2. Oral Presentations	• Able to evaluate chemical processes in the literature • Professionally present key points of learning • Effectively communicate information orally	High	Significant	Moderate	Basic	Not even reaching marginal level
3. Performance in Teacher-student Interaction	• Active participation in class discussions • Active participation in group activities • Able to raise well-thought questions in class	High	Significant	Moderate	Basic	Not even reaching marginal level
4. Examination	• Understand the key points in the lectures and tutorials • Able to apply learning to analyse and solve problems • Able to expand on learning and formulate new ideas	High	Significant	Moderate	Basic	Not even reaching marginal level

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, chemical biology, 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.	