

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:	Laboratory Course for Cell Biology and Biochemistry
Course Code:	CHEM2072
Course Duration:	1 semester
Credit Units:	2 credits
Level:	B2
Proposed Area: (for GE courses only)	<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: (Course Code and Title)	Nil
Precursors: (Course Code and Title)	CHEM2003/BCH2003 Biochemistry and CHEM2066/BCH2066 Cell Biology
Equivalent Courses: (Course Code and Title)	BCH2072 Laboratory Course for Cell Biology and Biochemistry
Exclusive Courses: (Course Code and Title)	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course aims at providing students with hand-on experience of working on the bench with basic cell biology and biochemistry. This course emphasises on the acquisition of experimental skills and techniques that are needed for modern technologies used in the two related fields. The main objective of the course is to allow the students to consolidate the principles taught in the lectures of both cell biology and biochemistry. At the end of the course, the students should feel comfortable to handle equipment and tools commonly used in the cell biology and biochemistry laboratory, and perform experiments independently.

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.	Develop basic research skills required for modern cell biology and biochemistry curricula		✓		
2.	Develop skills in formulating a hypothesis, testing a hypothesis, data collection, analysis and presentation in graphical and table forms			✓	
3.	Design and setup of experiments to illustrate certain principles in cell biology and biochemistry			✓	✓
4.	Analyze and critically evaluate the data collected from experiments			✓	✓
5.	Summarize and report the observations in a concise and clear form		✓	✓	✓
		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	
Practical	Teaching and learning is primarily based on the practical set in the course	✓					
Pre-lab exercise	Pre-lab exercise in discussing the hypothesis and methods used in the experiments		✓				
Protocol reading	Reading the protocols and understanding the rationales behind every step before designing the experiments for implementation			✓			
Group discussion	Discussion on the data collected and data analysis as a group				✓		
Report writing	Writing a report of the observations in the format of a typical scientific journal article					✓	

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: <u>100%</u>							
End-of-course quiz	✓	✓	✓			28%	
Written reports	✓			✓	✓	72%	
Examination: <u>0%</u> (duration: --)							
* 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. End-of-course quiz	Ability to understand the principle and rationale behind the experiment	Demonstrates an accurate and complete understanding of the question	Demonstrates an accurate but only adequate understanding of the question	Demonstrates an inaccurate and partially understanding of the question	Do not demonstrate accurate understanding of the question	Unable to answer and understand most of the questions
2. Written reports	2.1 Results and data analysis	Provide an insightful and accurate analysis of the data	Provide an analysis of the data	Provide an unclear analysis of the data	Provide an unclear and inaccurate analysis of the data	Do not include an analysis statement with their results
	2.2 Scientific knowledge and detail	Description of scientific terms, facts, key concepts and theories are complete and correct	Description of scientific terms, facts, key concepts and theories are mostly complete and correct	Description of scientific terms, facts, key concepts and theories are partially complete and correct	Description of scientific terms, facts, key concepts and theories are either missing or incorrect	Description of scientific terms, facts, key concepts and theories are not included

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.)

Basic laboratory skills including solution preparation and pipetting
Cell culture, cell counting, and cell disruption
Genomic DNA isolation and concentration measurement
Cytotoxicity, cell morphology and microscopy

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.	Practical skills in biomolecular sciences (3 rd edition) Rob Reed, David Holmes, Jonathan Weyers, and Allan Jones. Pearson Education Limited. ISBN: 978-0-13-239115-3. Publication date: 2007
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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.)

- A. 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