

Course Syllabus

**offered by Department of Chemistry
with effect from Semester A 2018/19**

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 2018/19**

Part I Course Overview

Course Title:	Discovery in Biology
Course Code:	BCH1200
Course Duration:	1 semester
Credit Units:	3 credits
Level:	B1
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>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

After a century in which physical sciences and engineering have dominated public attention, many of the most challenging issues in the 21st century are likely to be related to biology: dealing with emergent diseases, feeding the increasing world population, generating energy from biological sources, creating a better environment for sustainable growth. Biology is on the verge of answering some of the most fundamental questions of our existence: How do organisms grow and develop? To what extent can and should we manipulate biology for our purposes?

This course aims to equip students with little or no biological background with basic biological concepts needed to navigate in a world where biological knowledge is becoming increasingly essential for a global citizen. In this course, students will be guided to explore the intricacy and complexity of organisms and integrate this knowledge into the world around them.

The course will begin with an examination of the chemical basis of life, then move on to systems of increasing complexity, from genes to cells to ecosystems. At all times, the course will connect students to issues of human interest, examining social, ethical and environmental issues relevant to biology in the 21st century. The central theme is to apply biological concepts to familiar experiences and to help students share the excitement of science and its importance to their daily lives.

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 basic concepts of biology governing the diversity and complexity of life.		✓		
2.	Apply basic biological concepts to discover and analyze the reasons behind local / regional / global issues in relation to daily life.		✓	✓	
3.	Examine and discover the roles of biology in society both today and in the future.		✓	✓	
		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	
Lectures	- Active listening	✓	✓	✓	
*Labs	Students working in small groups to discover how standard procedures can explain lecture-related concepts and problems.		✓	✓	
*Field Trip	Out-of-classroom learning experience – observation/data collection/processing and analysis of information leading to discovery of natural ecological processes / biodiversity new to students / presentation.	✓	✓	✓	
Quizzes	Two quizzes (in week 4 and week 8) will be given to assess knowledge (application of knowledge and critical thinking) on lecture/lab/field trip materials.	✓	✓	✓	
Group projects & presentations (Assessed Tutorials)	Students will be required to form groups of 3-4 and together perform a “group presentation” of 15 minutes on a selected topic for the modules on (1) Microbiology, and (2) A Brave New World.	✓	✓	✓	
Course evaluation	Mid semester evaluations and end of semester examination.				

*Particular attention will be given to these discovery-based teaching and learning activities which are specifically designed to foster and nurture an attitude of curiosity/discovery in students and will be assessed in this course.

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		
Continuous Assessment: <u>40%</u>					
Lab exercises and reports (two)		✓	✓	16%	
Field trip and report (one)	✓	✓	✓	8%	
“Assessed Tutorials” on two thematic areas: - Microbiology - A Brave New World		✓ ✓	✓ ✓	16%	
Examination: <u>60%</u>					
Quiz 1 (week 4) (1 hour)				15%	
Quiz 2 (week 8) (1 hour)				15%	
Final Exam (end of semester) (1.5 hours)				30%	
				100%	

* The weightings should add up to 100%.

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for BCH courses:

“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. Lab exercises		Obtain 75% or above correct answers	Obtain 60% or above correct answers	Get 45% or above correct answers	Get 40% or above correct answers	Get less than 40% correct answers
2. Field trip		<p>(1) Element of science in field observations/records & extended activity Contains comprehensive and accurate records for the field visit, with clear interpretations of what have observed, and evidence to show ability to collect and synthesize information related to the selected topic of research. Fully addresses the report requirements and demonstrates clear mastery of the purpose of the field visit and activities involved.</p> <p>(2) Format and context The report is presented in an accurate, concise and coherent fashion. No spelling or grammatical errors. Appropriate referencing.</p>	<p>(1) Element of science in field observations/records & extended activity Contains accurate records for the field visit, with interpretations of what have observed, and evidence to show ability to collect and report information related to the selected topic of research. Adequately addresses the report requirements and shows good understanding of the purpose of the field visit and activities involved.</p> <p>(2) Format and context An adequate presentation of report. Neat, but with few (occasional) spelling or grammatical errors. Few (occasional) errors in referencing.</p>	<p>(1) Element of science in field observations/records & extended activity Contains accurate records for the field visit, but with only some interpretations of what have observed, and limited evidence for search for information related to the selected topic of research. Largely addresses the report requirements but with some missing parts, and shows basic understanding of the purpose of the field visit and activities involved.</p> <p>(2) Format and context Some inaccuracies or lack of detail in presentation of report. Neat, but with some spelling or grammatical errors. Some errors in referencing.</p>	<p>(1) Element of science in field observations/records & extended activity Contains very limited records for the field visit, with no interpretations of what have observed, and lack of evidence for search for information related to the selected topic of research (if any). Does not address the report requirements and shows a lack of understanding of the purpose of the field visit and activities involved.</p> <p>(2) Format and context Presentation of report is inaccurate and incomplete. Numerous spelling or grammatical errors. Many errors in referencing.</p>	Failure to participate in the field visit activity.

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
3. “Assessed Tutorials” on two thematic areas: - Microbiology - A Brave New World		<p>(1) Content and context Excellent logical structure with coverage and relevance. The work is presented in an accurate, concise and coherent fashion.</p> <p>(2) Presentation skills Fluent language with a formal but conversational tone and no help from cue cards. Keeps eye contact with audience throughout the presentation. Good timing.</p> <p>(3) Questions &Answers Provides detailed answers to all questions. Illustrates the answers with additional PowerPoint slides (prepared in advance).</p>	<p>(1) Content and context Good logical structure with coverage and relevance. The work is presented in an accurate fashion.</p> <p>(2) Presentation skills Appropriate use of language with the help of cue cards. Keeps eye contact with audience. Good timing.</p> <p>(3) Questions &Answers Can answer all questions in detail.</p>	<p>(1) Content and context Acceptable logical structure with coverage and relevance. The work is presented in an acceptable fashion.</p> <p>(2) Presentation skills Reading from single-page notes or cue cards. Occasional eye contact with audience. Either too short or overruns by only one to two minutes.</p> <p>(3) Questions &Answers Can answer most questions.</p>	<p>(1) Content and context No structure with no/little coverage and relevance. Very easy to find mistakes in the presented work.</p> <p>(2) Presentation skills Mumbling. No eye contact with audience. Very poor timing (e.g., either far too short or manages to present only a small part of the material).</p> <p>(3) Questions &Answers Fails to answer most questions and has difficulty understanding many of them.</p>	Zero contribution in the whole presentation, including information research, data processing, preparation works and presentation.
4. Quizzes and final examination		Obtain 75% or above correct answers	Obtain 60% or above correct answers	Get 45% or above correct answers	Get 40% or above correct answers	Get less than 40% correct answers

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.)

- Microbiology
- The Chemistry of Life
- The Biology of Cells
- Genetics
- Ecology
- Evolution and Biodiversity
- Plant Evolution and Diversity
- Animal Physiology
- A Brave New World

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.	
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2.2 Additional Readings

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

1.	“Biology The Dynamic Science”, Cengage Learning, 3rd edition, 2014
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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
Assessed Tutorial