**City University of Hong Kong**
**Course Syllabus**

**offered by Department of Chemistry**
**with effect from Semester B 2017/18**

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## Part I Course Overview

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|---|---|
| **Course Title:** | Dissertation |
| **Course Code**: | BCH6124 |
| **Course Duration:** | Two semesters (four semesters for students taking the part-time mode of study) |
| **Credit Units**: | 16 |
| **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

This course enables students to become competent in applying theory and methodology to a specific problem, to develop their ability to carry out investigative/research work in a selected area of chemical science, and develop their abilities to present findings in a precise and coherent manner. On completing this course, students will be able to:

-carry out research and development work, and to solve practical problems;
-demonstrate specialist skills in a chosen subject area through the application of theory and techniques provided by the course;
-demonstrate their initiative, intellectual achievement and understanding of the chosen subject matter, as well as the principles being applied; and
-manage and present their dissertation in a precise and coherent manner.

### 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, state and justify a testable problem related to chemical science and technology | | ✓ | ✓ | |
| 2. | Research, assemble, and critically evaluate literature relevant to the problem being analysed | | | ✓ | |
| 3. | Design experiments relevant to the problem being analysed, and utilise appropriate skills and/or instrumentation(s) to undertake the experiments | | | ✓ | |
| 4. | Analyse and interpret data, and accurately present experimental findings in an appropriate fashion | | | ✓ | |
| 5. | Write a dissertation presenting the problem being analysed. The dissertation should be organized in the fashion of a scientific paper, i.e. it should include research background, experimental findings, data interpretations, and conclusions | | | ✓ | ✓ |
| 6. | Make a formal oral presentation of the research project, effectively summarising the project's background, the problem being analysed, the methods involved, the results achieved and the conclusions which result. | | | ✓ | ✓ |
| | | 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 | 5 | 6 | |
| Discussions with supervisor | Discussions with the student's supervisor, and student's reading of the current literature will lead to the development, and refinement, of a testable chemical problem | ✓ | ✓ | ✓ | | | | |
| Literature search | Library and web-based searching of the literature, reading and interpretation of relevant scientific literature, and assembly of a literature review relating to the testable chemical problem | | ✓ | ✓ | | | | |
| Experiments | Undertaking suitable experiments under supervision, and maintaining a log book of data relevant to the experimental process | | | ✓ | | | | At least 16 hours/week for 24 weeks; (At least 8 hours/week for 48 weeks for students taking the part-time mode of study) |
| Data analysis | Data analysis, including the use of appropriate characterization and analytical techniques | | | | ✓ | | | |
| Dissertation writing | Writing, under guidance, a formal scientific report summarising the experimental results in the context of knowledge related to the subject matter | | | | | ✓ | | |
| Oral presentations | Delivery of two formal oral presentations, one in the early stage of project development (week 6 for full-time students and week 10 for part-time students; any necessary change or modification to the project objectives can be made at this stage); the other one at the end of the project. The duration of each presentation is 25 mins (5-min question and answer session included) | | | | | | ✓ | |

## 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 | 6 | | |
| Continuous Assessment: 100% | | | | | | | | |
| Oral presentations | ✓ | ✓ | | ✓ | | ✓ | 30% | Total 2 presentations, each of them accounts for 15% of the final marks |
| Dissertation | ✓ | ✓ | ✓ | ✓ | ✓ | | 70% | |
| | | | | | | | 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 component."***

**Note:** Students can apply for an extension of the deadline for dissertation report submission. However, such application would require approval of the supervisor and the course leader.

## 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. Oral presentations | Ability to demonstrate or explain the principles, methodologies, problems and limitations of the selected research topic and experimental findings | High | Significant | Moderate | Basic | Not even reaching marginal levels |
| 2. Dissertation | -Demonstrate critical thinking ability and problem solving ability in the selected research topic<br>-Novelty of the research project<br>-Ability to provide detailed, critical analysis of the data, clear explanations and fair justifications<br>-Demonstrate ability in integration of various sources of information to explain the impact of the findings via clear written communication | 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.)*

Nil

**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.)*

Nil

**2.2 Additional Readings**

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

Nil