

College of Science

理學院

Department of Chemistry

化學系



香港城市大學  
City University of Hong Kong

# Master of Science in Chemistry

理學碩士(化學)



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Yeung Kin Man Academic Building



香港城市大學  
City University of Hong Kong

Student Handbook  
2024-2025

香港城市大學 專業進修學院

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## INTRODUCTION

This Handbook contains useful information for students enrolled in the Master of Science in Chemistry programme offered by the Department of Chemistry. Students are advised to familiarize themselves with this Handbook so as to obtain a general overview of the Department and its teaching courses. It is, however, intended to be read in conjunction with other official information posted by the Chow Yei Ching School of Graduate Studies, such as the CityUHK Academic Regulations and the CityUHK Academic Calendar which are available on the website of the Chow Yei Ching School of Graduate Studies.

## THE DEPARTMENT OF CHEMISTRY

The **Department of Chemistry** offers studies and research in fundamental and applied aspects of chemistry, life, molecular and environmental sciences to about 250 undergraduate and 300 postgraduate students. The Department consists of 33 academic staff including renowned scientists, e.g. Fellows of the European Academy of Sciences, Highly Cited Researchers (listed by Clarivate Analytics), etc., as well as about 100 research staff members. The study programmes are designed to help students understand important scientific issues, current technologies and future challenges in light of local, regional and global needs following the outcomes-based teaching and learning framework. An interdisciplinary approach is adopted and an emphasis is placed on the integration of theory with practical classes via hands-on experience. The teaching and research laboratories provide a stimulating environment to do experimental work utilizing state-of-the-art equipment and instruments. Relevant industrial experience in local and international companies and research institutions is included as appropriate. Overseas field trips and exchange studies complement the core study programmes. Students are also encouraged to attend departmental seminars by well-known visiting scientists. The Department also co-supervises about 8 PhD students with the University of Science and Technology, China in our Advanced Laboratory of Environmental Research and Technology in Suzhou.

The Department strongly fosters interdisciplinary research and development activities. Acquisitions of equipment highlighted the multidisciplinary nature of experimental and theoretical research. Three NMRs of 300, 400 and 600 MHz are set up for undergraduate & postgraduate teaching and research applications in study of molecular structures, interactions, kinetics and dynamics, as well as biological, synthetic solutions and composites. NMR applications & analysis cover the fields of life science, materials research, pharmaceuticals, biotechnology, chemistry, metabolites, nutritional science and molecular diagnostics, etc. Single Crystal and Powder X-ray Diffraction (XRD) are major tools setup for chemical crystallography, structural biology, quantitative and qualitative analysis on crystallinity, phase orientation, scattering portfolio, etc. An Atomic Force Microscope (AFM) has been setup as a world-leading instrument for direct imaging in air/liquid/vacuum and broad temperature/ humidity control with ultra-high sensitivity, accuracy, and resolution for a wide variety of properties not limit to surface topography, but also a benchmark for surface potential, electrical conductivities, electromagnetic properties under both ambient and high-vacuum conditions down to atomic-scale.

The two confocal and compound microscopes are fitted with lasers and filters for detecting the emission ranging from the fluorescent to the near infrared spectrum of novel chemicals introduced inside cells and organisms. A metabolomics facility provides support and training on liquid chromatography based analyses of metabolites associated with biological and toxicological interactions. A laser laboratory offers a wide variety of experimental facilities for the spectroscopic studies of the reaction mechanisms, relaxation processes to excited state

dynamics of interest in photochemistry, photophysics and photobiology. This laboratory is featured with a wavelength tunable Ti:Sapphire femtosecond laser coupled to the femtosecond transient absorption spectrometer and a nanosecond flash photolysis system equipped with a high power ns-pulsed Nd:YAG laser. Three pieces of equipment have been installed, namely a genome sequencing system, a peptide synthesizer and a DNA/RNA synthesizer for peptides and DNA/RNA research studies.

Staff expertise currently spans from fields of analytical chemistry, green and synthetic chemistry, spectroscopy and catalysis, materials chemistry, computational chemistry to other biological chemistry area e.g. environmental biology and chemistry, biochemistry, cell biology, biosensing, microbiology and bioactive compounds. Current research of the Department focuses on catalyst/ new materials design and synthesis, organic electroluminescent devices, photo-responsive and luminescent chemosensing, proteomics and metabolomics, nano-bio interfaces, and sustainable development in the marine ecosystem. CityUHK's Chemistry has been widely recognized as reflected from various global rankings, e.g. NTU Ranking 2023 by subject – Chemistry (#1 in Hong Kong); ARWU Global Ranking of Academic Subjects 2023 Chemistry (#1 in Hong Kong); One of the highlights of our research has been the leading role we have played in the State Key Laboratory in Marine Pollution (SKLMP) and the Center of Super-Diamond and Advanced Films (COSDAF).

The Department endeavours to develop close links with both the public and industrial sectors to keep abreast of society needs. Many of the staff research projects and undergraduate/postgraduate research projects are carried out in collaboration with industry partners and government bodies as well as with other local and overseas universities.

With the recruitment of new academic staff members in strategic areas of chemistry discipline, the Department is ready to take up the challenges and conduct cutting-edge research in new strategic areas.

## **I. KEY MEMBERS OF PROGRAMME MANAGEMENT TEAM**

<b>Programme Leader</b>	Prof ZHU Guangyu
<b>Deputy Programme Leader</b>	Prof SUN Hongyan
<b>First Year Tutor</b>	Prof LUO Jingdong
<b>Second Year Tutor</b>	Prof ZHU Guangyu
<b>Admission Tutor</b>	Prof FAN Zhanxi

## **II. MODE OF ATTENDANCE AND DURATION**

Master of Science in Chemistry: Combined mode (1-year full-time or 2-year part-time)#

# *Combined mode: Local students taking programmes in combined mode can attend full-time (12-18 credit units per semester) or part-time (no more than 11 credit units per semester) study in different semesters without seeking approval from the University. For non-local students, they will be admitted to these programmes for either full-time or part-time studies. Non-local students must maintain the required credit load for their full-time or part-time studies and any changes will require approval from the University.*

## **III. PROGRAMME AIM**

The Master of Science in Chemistry aims to train and produce graduates with highly marketable research skills and experiences in a wide variety of advanced chemistry disciplines, such as catalysis; synthetic chemistry; materials & biomaterials chemistry; analytical & bio-analytical science; computational chemistry; environmental chemistry and chemical biology, to meet local, regional and global demands for R&D specialists in the industrial, commercial, and government sectors. Graduates are also eligible for pursuing higher research degrees in local and overseas universities and research institutes.

## IV. PROGRAMME INTENDED LEARNING OUTCOMES

Upon successful completion of this Programme, students should be able to:

1. Develop technical competence and skills necessary for carrying out original research in academic and industrial research environment.
  - Acquire and organize resource materials.
  - Present materials effectively, both orally and in writing.
  - Participate confidently in co-operative or independent projects.
2. Acquire and integrate advanced knowledge from a variety of disciplines especially chemical principles and research methodologies via discovery-based studies in order to become effective problem solvers and innovators.
  - Recognize the relation between theory and practices in selected areas of study.
  - Identify and analyze the limitations and challenges in existing research and methodology through critical evaluation of chemical information and key findings of scientific papers.
  - Have an informed respect for the knowledge and technical skills in chemistry and molecular sciences, with special emphasis on the molecular design, chemical methodology, operations of advanced chemical instrumentations and laboratory procedures in synthetic and analytical chemistry.
  - Evaluate experimental data through testing hypotheses, defining problems and creating innovative and practical solutions.
3. Create new knowledge, methodology and understanding through the process of research and inquiry.
  - Carry out research and development work.
  - Develop expertise in a chosen subject area through conducting research as well as the application of theory and techniques provided by the programme.
  - Manage and present research findings in a precise and coherent manner.

## V. PROGRAMME STRUCTURE

### Master of Science in Chemistry

Combined mode (1-year full-time) / (2-year part-time) (30 credit units)

#### 1. Core Courses (15 credit units)

Course Code	Course Title	Level	Credit Unit	Semester
CHEM6118	Advanced Chemical Instrumentation	P6	3	A
CHEM6119	Frontiers in Chemical Biology	P6	3	A
CHEM6121	Academic and Industrial Research, Development and Innovation	P6	3	A
CHEM6125	Selected Topics in Chemistry & Molecular Sciences	P6	3	B
CHEM6126	Advanced Seminar Series	P6	3	A and B

#### 2. Elective Courses (15 credit units)

##### Group A (at least 6 credit units)

Course Code	Course Title	Level	Credit Unit	Semester
CHEM6127	Dissertation	P6	14	A and B (Full-time: 2 semesters; Part-time: 4 semesters)
CHEM6129	Advanced Directed Studies	P6	6	A and B

##### Group B

Course Code	Course Title	Level	Credit Unit	Semester
CHEM6114	Food Processing and Food Chemistry	P6	3	B
CHEM6123	Postgraduate Symposium	P6	1	B
CHEM6128	Environmental Health & Risk Assessment	P6	3	A
CHEM6130	Cosmetic Product Development and Formulation	P6	3	A
CHEM6131	Frontiers in Modern Synthetic Chemistry	P6	3	B
CHEM6132	Frontiers in Sustainable Energy Conversion and Storage	P6	3	A
CHEM6133	Advanced Entrepreneurship Programme in Chemistry	P6	3	B



## VI. ASSESSMENT AND PROGRESSION

### 1. Preamble

The assessment of students' performance is an appraisal of the extent to which students are attaining or have attained the objectives of the programme. The regulatory statements contained in this section should be read in conjunction with, and are subject to the overriding authority of, the Academic Regulations of the City University of Hong Kong.

### 2. Assessment Policy and Methods

**2.1** Please refer to the "Academic Regulations for Taught Postgraduate Degrees" on the website of the Chow Yei Ching School of Graduate Studies for details. The assessment system consists of a combination of assessments in coursework and written examination. The assessment criteria vary according to the different components of a course.

**2.2** Coursework consists of student performance in oral presentations, written assignments, projects and dissertation, participation in tutorial and laboratory sessions. Formal written examinations are held after each semester.

**2.3** **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."**

**2.4** Students should be aware that the assessment of their academic work in the University has two aspects: (1) Students will receive "Grades" for the assessment of courses which will be used to calculate Grade Point Average (GPA); (2) The classification of their awards will be based on a "Cumulative Grade Point Average (CGPA)".

Students' overall performance is measured by two types of GPA, a Semester GPA (SGPA) and a Cumulative GPA (CGPA) which will be calculated at the end of a semester. The difference of SGPA and CGPA is that SGPA will only be calculated based on the courses registered in that particular semester, while CGPA is calculated for all courses taken during enrolment for a specific programme. CGPA will be used as the award criteria. Please refer to the "Academic Regulations for Taught Postgraduate Degrees" for the formulae for calculating GPA.

**2.5** **Students may be granted a taught postgraduate award only if they have achieved a CGPA of 2.0 or above.**

**2.6** When a student's **SGPA or CGPA falls below 2.0**, he/she may be advised to reduce the study load in the following semester, or be given an academic warning. Students may repeat a course, or an equivalent course, to recover a failure or to improve a course grade of C or below, subject to the concerned academic unit's course offering schedule and availability. Only two repeat attempts may be permitted. Course grades for all attempts will appear on the student's academic transcript, but only the final grade earned will be included in the calculation of the student's CGPA.

**2.7** Courses may be designated "dissertation-type" courses in the course catalogue. For dissertation-type courses, the catalogue will specify the normal duration for course

registration and the maximum duration for course registration. Students are not permitted to repeat a dissertation-type course.

Courses are graded according to the following schedule:

Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent	The qualifiers, such as “Excellent”, “Good” etc., define student performance with respect to the achievement of course intended learning outcomes (CILOs).
A	4.0		
A-	3.7		
B+	3.3	Good	
B	3.0		
B-	2.7		
C+	2.3	Fair	
C	2.0		
C-	1.7		
D	1.0	Marginal	
F	0.0	Failure	
P (Pass-fail course only)		Pass	
<b>Operational Grades</b>			
IP	In Progress	An IP grade is shown where students will register for the same course in the subsequent semester/term to complete the assessment of the course.	
I	Incomplete	A grade of incomplete may be granted (i) where there are extenuating circumstances that have prevented a student from completing required work, or attending the examination; (ii) at the discretion of the Assessment Panel. Where an “I” grade is assigned, the Assessment Panel may approve a schedule for the completion of work, or a supplementary examination. An alternative grade should be assigned no later than four weeks after the "I" grade is first reported or as soon as practicable thereafter.	
S	Dissertation Submitted	In a dissertation-type course, an S grade is assigned by the Course Leader when a student’s dissertation has been submitted for assessment.	
TR	Credit Transfer	Assigned when a student is granted transferred credit units for the course.	
Z	Exemption	Assigned when a student is exempted from the course.	
AU	Audit	An audited grade is assigned when an auditing student has completed the conditions established at registration as an auditor. No assessment is made or grade awarded for auditing.	
X	Late Drop	Assigned when a student is permitted to drop the course after the add/drop deadline.	
WD	Withdrawn	Assigned when a student has registered for the course in a semester/term and subsequently submitted a notification of withdrawal from the University.	

- 2.8 Regarding termination of study, please note the Academic Regulations:**
- “1. The University has the right to terminate a student’s studies for failure to maintain satisfactory academic progress, as determined by the Examination Board, or to comply with the policies and procedures of the University.**
  - 2. The Examination Board may terminate the studies of a student under the following circumstances:**
    - (i) The student’s SGPA is below 1.00 for two consecutive semesters; or**
    - (ii) The student’s academic progress is unsatisfactory and is unable to meet the conditions stipulated by the home academic unit after being put on Academic Probation for two consecutive semesters.**
  - 3. Irrespective of 2 above, the Examination Board may prescribe any other criteria for terminating a student’s studies.**
  - 4. Notwithstanding 2 and 3 above, students’ studies will be terminated if they fail to pass a required course, or its equivalent/substitute course, after three attempts.**
  - 5. For termination of studies due to academic reasons, students may apply for readmission to the University, with admission to any programme occurring no earlier than one academic year after the termination. Upon readmission to the same programme after termination of studies, students may be given one additional opportunity to pass each required course they have failed in their three previous attempts.”**

**2.9** The classification of final awards and recommendations to the Senate to confer awards are made by the Departmental Assessment Panel.

**2.10** The demarcation of award boundaries for Taught Postgraduate Degree Programmes is as follows:

<b>Award</b>	<b>CGPA</b>
Distinction	3.50 or above
Credit	3.20-3.49
Pass	2.00-3.19

**2.11 Illness or other Circumstances Related to Assessment**

- “1. A student who reasonably believes that his/her ability to attend an examination, or in-course assessment with a weighting of 20% or above, has been adversely affected by circumstances beyond his/her control must submit the case, with documentary evidence, to his/her home academic unit following the procedures stated on the University website, as soon as possible but no later than 5 working days of the scheduled date for completing the affected examination or assessment.**
- 2. The home academic unit of the student will investigate the case, in consultation with the course-offering academic unit. Only compelling reasons such as illness, hospitalization, accident, family bereavement or other unforeseeable serious personal or emotional circumstances will be considered. The decision of the home academic unit is final and will be conveyed to the student in writing as soon as possible but no later than 10 working days following receipt of the case.**
- 3. If the case is justified and substantiated, the decision will be conveyed to the Assessment Panel which will determine whether to offer the student a make-up examination or coursework or other alternative assessment. Where assessments for more than one course are affected, it is the responsibility of**

**the home academic unit to inform all relevant Assessment Panels. The Assessment Panel may also adjust the grade of the student if deemed appropriate. The course-offering academic unit will convey the Assessment Panel’s decision on the make-up arrangements to the student in writing as soon as possible.”**

### **3. Rules on Academic Honesty**

**3.1** Please refer to the “Rules on Academic Honesty” on the website of the Office of the Provost and Deputy President for details.

**3.2** Academic honesty is central to the conduct of academic work. Students are expected to present their own work, give proper acknowledgement of other's work, and honestly report findings obtained. As part of the University's efforts to educate students about academic honesty, all students are required to complete the Online Tutorial and Quiz on Academic Honesty and make a Declaration on their understanding of academic honesty.

**3.3** Academic dishonesty is regarded as a serious offence in the University. Any related offence can lead to disciplinary action with a penalty including without limitation, expulsion from the University, debarment from re-admission, deprivation of an academic award already conferred or revocation of a certification granted.

**3.4** **Plagiarism is a serious offence** involving “the use of somebody else’s ideas, words, etc. as one’s own”. Examples of such acts are copying other students’ work in examinations, in tests, or in tasks for coursework assignments, repetition of part or whole sentences / paragraphs / any materials from hard-copy publications or online sites for one’s own use **without acknowledgement of the source in one’s work.**

**3.5** Students should refer to the “**Guidelines for Writing a Master’s Dissertation**” for proper format of reference citation.

### **4. Articulation**

**4.1** For students who have completed an award level at the University and wish to enroll in a higher award level within the programme, the previous credit units and grades earned from lower level awards within the same programme may count toward the higher award level being pursued and in the calculation of a student’s GPA. The validity period for courses recognized at the time of admission for credit transfer purposes is 8 years.

**4.2** The full MSc degree award in CHEM requires 30 credit units with the completion of taught courses plus the Dissertation / Advanced Directed Studies.

## VII. COMMUNICATION CHANNELS

### Course Leaders, Lecturers and Tutors

The role of a Course Leader is to coordinate the activities of individual courses. If you have any problem with your study in a particular course, you should see your Lecturer, Tutor and/or Course Leader without delay. They can be reached by phone or by email, you will find them in general friendly and helpful.

### Year Tutors

The Year Tutors are responsible for the day-to-day administration of a specific year of the Programme. **For the current academic year 2024/25, Prof. LUO Jingdong is the First Year Tutor and Prof. ZHU Guangyu is the Second Year Tutor.** You may consult them on any matters related to your particular year of study.

### Programme Committee and Programme Leader

The Programme Committee is the departmental body responsible for the organization, academic development and monitoring of the programme. The Committee consists of academic staff and student members. Two students from each programme-year, elected by and from the students studying in each year of the programme, are appointed to the Committee on a one-year term. **For the 2024/25 academic year, the Chairman of the Programme Committee is Prof. ZHU Guangyu who is also the Programme Leader.** The Programme Leader reports to the Head of Department and is responsible for the day-to-day administration of the Programme.

### Joint Staff-Student Consultative Committee (JSSCC)

The JSSCC is a formal part of the consultative process between students and staff in the Department, but the meetings are conducted in an informal manner and do not make binding decisions. The idea is to give students an opportunity to express their views on the content and organization of the Programme and to raise any complaint or make any suggestion of a general nature. Student representatives (two from each programme-year) will meet with the Programme Leader and the Year Tutors at least once a semester, usually near the end of the semester.

### Canvas

Canvas is an e-learning platform established for all undergraduate and postgraduate courses which can also be used as a means of communication for staff and students. Through Canvas, students can provide feedback to the Programme Leader or Year Tutors throughout the whole year and thus maintain a continuous dialogue with them.

### Wiki Site for CHEM students

A special channel has been created to facilitate our communication with students. The link can be found under “Related Links” on the homepage of the CHEM website. The Wiki Site is the main platform to provide important news and announcements for CHEM students’ attention. Please check the Wiki Site on a regular basis.

## Student Development Services, CityUHK

The SDS of the CityUHK has various counselling services that every CityUHK student can use. Please contact the SDS direct if you need help in solving problems on academic work, personal adjustment, family and social relationship, financial difficulties as well as career development.

## VIII. USEFUL INFORMATION FOR STUDENTS

The CityUHK Portal (<https://www.cityu.edu.hk/portal/>) is one of the major communication channels between students and staff and the University. Students will be able to locate useful information like University policies, academic regulations, programmes and courses, curriculum planning, examination arrangement and other student facilities/services via the CityUHK Portal. To know more about course registration, class scheduling and assessment-related matters, students may also visit the websites of:

- Academic Regulations and Records Office: <http://www.cityu.edu.hk/arro/>.
- Chow Yei Ching School of Graduate Studies: <http://www.cityu.edu.hk/sgs/>.

## IX. COURSES AND RESPECTIVE COURSE LEADERS

CHEM6114	Food Processing and Food Chemistry	Prof KO Chi Chiu Vincent
CHEM6118	Advanced Chemical Instrumentation	Prof SIU Chi Kit Andy
CHEM6119	Frontiers in Chemical Biology	Prof ZHU Guangyu
CHEM6121	Academic and Industrial Research, Development and Innovation	Prof FAN Zhanxi
CHEM6123	Postgraduate Symposium	Prof KO Chi Chiu Vincent
CHEM6125	Selected Topics in Chemistry & Molecular Sciences	Prof YE Ruquan
CHEM6126	Advanced Seminar Series	Prof LUO Jingdong
CHEM6127	Dissertation	Prof LU Zhenpin
CHEM6128	Environmental Health and Risk Assessment	Prof LEUNG Mei Yee Kenneth
CHEM6129	Advanced Directed Studies	Prof LU Zhenpin
CHEM6130	Cosmetic Product Development and Formulation	Prof WONG Chun Yuen Alex
CHEM6131	Frontiers in Modern Synthetic Chemistry	Prof TAN Xuefeng
CHEM6132	Frontiers in Sustainable Energy Conversion and Storage	Prof SHAN Jieqiong

CHEM6133    Advanced Entrepreneurship Programme in    Prof ZHU Zonglong  
Chemistry

\*\*Details of individual courses are available on CHEM departmental homepage.