

Catalog of Postgraduate Programs and Curricula

Curriculum for PhD(CHEM) (For students admitted in 2010-11)

Program Requirements for Doctor of Philosophy (PhD) Program in Chemistry

Credits

1. To complete **12 credits** of approved postgraduate coursework.
2. If the student has an HKUST MPhil degree in Chemistry, no further coursework is required. If the student enters the PhD program possessing only a bachelor's degree, the MPhil coursework requirements must be fulfilled. A student entering with a master's degree from another university with excellent performance may be granted credit transfer.

Postgraduate Seminar

1. To take CHEM 600 *Chemistry Seminar* in all but one semester of full-time enrollment; and
2. To present in 2 seminars: one on literature unrelated to the student's doctoral research, and one on the completed thesis.

Qualifying Examination

To pass a qualifying examination.

Research and PhD Thesis Examination

1. To conduct research and enroll in CHEM 799 *PhD Thesis Research*; and
2. To defend the PhD thesis successfully.

Concentration

1. In addition to the existing program requirements, students who opt for the **Nano Science and Technology** concentration are required to:
 - Take at least 1 NANO course as a part of the 12 credits of required coursework;
Students who have an HKUST MPhil degree in Chemistry but have not taken any NANO courses before, are required to take at least one.
 - Complete NANO 601 *Advanced Topics in Nano Science and Technology* once; and
 - Conduct research in nano area.
2. In addition to the existing program requirements, students who opt for the **Molecular Medicine concentration** are required to:
 - Take BISC 666 *Molecular Medicine* and at least one course from the following course list as a part of the 12 credits of required coursework; and

BISC	338	<i>Pharmacology and Toxicology</i>
BISC	376	<i>Biochemistry of Diseases</i>

BISC 526	<i>Biochemical and Molecular Basis of Diseases</i>
CHEM 516	<i>Medicinal Chemistry</i>

Students who have an HKUST MPhil degree in Chemistry, Biochemistry, or Biology but have not taken any of the required courses, are required to take BISC 666 and at least one of the above courses.

- Conduct research in the area of molecular medicine.
3. In addition to the existing program requirements, students who opt for the **Scientific Computation concentration** are required to:
- Complete MATH 6915 (1-credit), which cannot be counted toward the credit requirements;
 - Complete one computation related course from the list below as a part of the 12 credits of required coursework:

MATH 5311	<i>Advanced Numerical Methods I</i>
MATH 5312	<i>Advanced Numerical Methods II</i>
MATH 5350	<i>Computational Fluid Dynamics for Inviscid Flows</i>
MATH 5360	<i>Weather, Climate and Pollution</i>
CHEM 5210	<i>Computational Chemistry</i>
PHYS 5410	<i>Numerical Modeling in Physics</i>
 - Conduct research in the area of scientific computation; and
 - Give a one-hour seminar on the related research within their first four regular terms of study.