CHEM 4056 Special Topics in Chemistry (3,3,0)
Prerequisite: Chemistry majors with Year III standing or above or consent of instructor
This course is devoted to the study of those current and important topics in chemistry that are not covered in the core and elective courses within the programme curriculum.

CHEM 4057 Spectroscopic Techniques for Structure Determination (3,3,0)
Prerequisite: CHEM 2009 Organic Chemistry II and CHEM 3007 Physical Chemistry II; or CHEM 2036 Fundamentals of Organic Chemistry and CHEM 2046 Physical and Inorganic Chemistry; or CHEM 3025 Chemical Analysis
To enable students to understand the basic principles of some modern spectroscopic techniques commonly used in chemical structure determination. To apply the spectroscopic techniques learnt in the determination of unknown molecular structures

CHEM 4065 Structural Methods in Chemistry (3,3,0)
Prerequisite: CHEM 2009 Organic Chemistry II and CHEM 3007 Physical Chemistry II; or CHEM 2036 Fundamentals of Organic Chemistry and CHEM 2046 Physical and Inorganic Chemistry
To equip students with a working knowledge of the major structural techniques in chemistry.

CHEM 4066 Dissertation in Environmental Studies (3,*,*)
Prerequisite: Chemistry majors (Year IV standing) in Environmental Studies Concentration
This course trains students to (1) conduct detailed and extensive literature search on current topics in environmental science, and (2) organize and present the relevant information gathered from such search in a dissertation format.

CHEM 4067 Atmospheric Science (3,3,0)
Prerequisite: CHEM 2017 Physical Chemistry I or CHEM 2046 Physical and Inorganic Chemistry or consent of the instructor
This course describes the fundamentals of photochemistry, kinetics, and mechanisms to the most important homogeneous and heterogeneous processes that take place in our natural and polluted atmosphere. Their critical interactions on local, regional and global scales will be addressed as well.

CHEM 4075 Marine Chemistry (3,3,0)
Prerequisite: Any Science majors with Year III standing
This course describes the nature and the chemical process in the marine environment. It aims to provide an in-depth understanding of the interrelationship of chemistry and other marine science disciplines and our daily life. Major ion composition of seawater, inputs to and outputs from the ocean via rivers, the atmosphere and the sea floor, biogeochemical cycles within the oceanic water column and sediments, recent discoveries and development in marine chemistry will be briefly discussed.

CHEM 4076 Chemical Testing Laboratory Management and Accreditation (3,*,*)
Prerequisite: CHEM 3005 Instrumental Analysis or CHEM 3025 Chemical Analysis
The course intends to introduce students the concept of quality management system in chemical and testing laboratories. In particular, concept of ISO 9001 and ISO/IEC 17025 will be emphasized. Through laboratory practice, students will also acquire adequate technical skills in the maintenance and calibration of analytical equipment and instruments.

CHEM 4077 Dissertation in Analytical and Testing Sciences (3,*,*)
Prerequisite: Chemistry majors Year IV standing
To train students to conduct detailed and extensive literature search on current topics in pure and applied chemistry. To train students to organize and present the relevant information gathered from such search in a dissertation format.

CHEM 4085 Food Analysis (3,3,0)
Prerequisite: CHEM 3005 Instrumental Analysis or CHEM 3025 Chemical Analysis
This course addresses the basic principles, procedures, instrumentations, and applications of food analysis. Emphasis will be placed on the chemical, physical, and microbial analysis of the major components and harmful substances in foods.

CHEM 4086 Forensic Analytical Chemistry (3,3,0)
Prerequisite: BIOL 2005 Biological Chemistry or CHEM 2008-9 Organic Chemistry I & II, or CHEM 2036 Fundamentals of Organic Chemistry
To provide students the advanced analytical methods in forensic chemistry for their applications to the analysis of controlled substances and materials with an emphasis on new method development.

CHEM 4878-9 Final Year Project I & II (3,0,9)
Prerequisite: Chemistry majors Year IV standing
To guide students in the development of research methodology appropriate to the practice of chemistry and to give opportunity to students to work on problems that have practical significance.

CHEM 4888-9 Environmental Studies Project I & II (3,*,*)
Prerequisite: Chemistry majors (Year IV standing) in Environmental Studies Concentration
To guide students in the development of research methodology appropriate to the practice of environmental studies and to give opportunity to students to work on problems that have practical significance.

CHEM 4898-9 Final Year Project I & II (3,0,9)
Prerequisite: Chemistry majors Year IV standing
To guide students in the development of research methodology appropriate to the practice of chemistry and to give opportunity to students to work on problems that have practical significance.

CHEM 7210 Analytical Process and Applied Statistics (2,2,0)
Prerequisite: Postgraduate standing
The objective of this course is to help the students to develop an analyst's approach to solve chemical analytical problems by equipping them with important basic tools including statistics, sampling and analytical planning, data treatment and interpretation, and experimental design.

CHEM 7220 Chemical Instrumentation (2,2,0)
Prerequisite: Postgraduate standing
Important concepts and developments in chemical instrumentation will be introduced. The student will acquire a better appreciation of the capabilities and limitations of these new tools which will help them make better choices of instruments and methods in real life analytical problems. The material in this course will be updated from time to time to reflect the most recent trend in instrument development.

CHEM 7240 Analytical Spectroscopy (2,2,0)
Prerequisite: Postgraduate standing
This course reviews the basic principles of modern spectroscopy and their applications at an advanced level. Emphasis is laid on the instruments used most commonly in elemental analysis (atomic spectroscopies) on the one hand and those for the analysis of molecular and ionic species in solution (optical spectroscopies) on the other.

CHEM 7250 Laboratory Management (2,2,0)
Prerequisite: Postgraduate standing
The objective of this course is to introduce concepts of quality assurance, issues pertaining to laboratory management, basic

principles of experimental design and chemometrics, and methods for efficient management of analytical laboratories.

CHEM 7270 Electroanalytical Chemistry (1,1,0)
Prerequisite: Students of MSc in Analytical Chemistry
This course illustrates the basic principles and applications of modern electroanalytical methods at the advanced level.

CHEM 7280 Surface Analysis (1,1,0)
Prerequisite: Students of MSc in Analytical Chemistry
This course provides a detailed treatment of surface analytical techniques, such as XPS, AES, SEM and EDX. Applications of these techniques in the studies of heterogeneous catalysis, polymer, semiconductor, material corrosion, etc. will be demonstrated to the students.

CHEM 7331-2 Dissertation (3,*,*)
Prerequisite: Students of MSc in Analytical Chemistry
A 15-month (part-time) dissertation on an analytical related topic is to be completed independently by each candidate under the supervision of faculty members in the Department of Chemistry or in conjunction with qualified scientists or experts in industrial, government, or other testing laboratories.

CHEM 7340 Environmental Analysis and Monitoring (1,1,0)
Prerequisite: Students of MSc in Analytical Chemistry
This course provides students with conceptual information, general principles and practical utility of important environmental sampling and analysis techniques most commonly used in environmental research and pollution control.

CHEM 7350 Sample Pretreatment Methods (1,1,0)
Prerequisite: Postgraduate standing
This course introduces the principles and applications of traditional and modern sample pretreatment methods, including Soxhlet extraction, microwave extraction, pressurized liquid extraction, supercritical fluid extraction and solid-phase microextraction. Emphases will be placed on the sample pretreatment of herbal materials and foods.

CHEM 7380 Food Safety Analysis (2,2,0)
Prerequisite: Postgraduate standing
This course addresses the principles and applications of various analytical tools in food safety analysis. Most up-to-date analytical techniques for food safety monitoring with local relevance will be discussed in details.

CHEM 7390 Separation Science (3,3,0)
Prerequisite: Postgraduate standing
This course provides a systematic study of the modern techniques of gas chromatography, high-performance liquid chromatography, ultra-performance liquid chromatography and capillary electrophoresis. Emphasis will be placed on the theory, principle and application of these analytical separation techniques to real-world chemical analysis.

CHEM 7401-2 Seminar I & II (0.5,*,0)
CHEM 7403-4 Seminar III & IV (0.5,*,0)
Prerequisite: Postgraduate standing
Regular seminars will be organized which must be attended by MSc students. Speakers from outside or inside institutions and industries who are experts of a particular field will deliver lectures on the topics of food analysis, drug analysis, and environmental analysis, etc. This will enlighten students on current trends and developments in chemical analysis, in analytical problems of global and local interests.

CHEM 7411-2 Advanced Analytical Laboratory (2,*,*)
Prerequisite: Students of MSc in Analytical Chemistry
These courses aim to provide thorough hands-on experience for students to perform and understand modern analytical instrumentation.

CHEM 7420 Mass Spectrometrics Analysis (1,*,*)
This course aims to provide students with in-depth knowledge on mass spectrometry and its application for environmental analysis, pharmaceutical analysis, bioanalysis and food analysis.

CHEM 7430 Parmaceutical and Traditional Chinese Medicinal Analysis (1,*,*)
This course aims to provide students with in-depth knowledge on selected topics in pharmaceutical and traditional Chinese medicinal analysis.

CHEM 7440 Bioanalysis (1,1,0)
Prerequisite: Postgraduate standing
This course intends to introduce students to methods that are used to analyse compounds of biological importance. Principles of modern bioanalytical techniques that are used to measure biomolecules and techniques that use biological processes for analyte detection will be discussed. Students will gain an overview of current advancements in bioanalysis.

CHEM 7450 Chemosensor and Biosensor (1,1,0)
Prerequisite: Postgraduate standing
Introduction to the field of chemosensor and biosensor, as well as an in-depth and quantitative view of the sensor design and performance analysis. Fundamental application of chemo/biosensor theory will be demonstrated including recognition, transduction, signal acquisition, and post processing/data analysis. Topics are selected to emphasize biomedical, bio-processing, environmental, and food safety application.

CHEM 7460 Forensic Analysis (1,1,0)
Prerequisite: Postgraduate standing
The course intends to introduce students the concept of forensic analysis using various daily-life scenarios. In particular, modern analytical approaches and techniques will be demonstrated in solving these forensic cases. Students will also gain an insight on the latest research trends of forensic science.

CHEM 7470 Food Analysis (3,3,0)
Prerequisite: Postgraduate standing
This course discusses methods for food analysis in relation to the nutrition and safety aspects of food products, which are of increasing importance as industries strive to meet rising consumer expectation and regulatory requirements. This course addresses the principles and applications of various analytical tools in food analysis. Most up-to-date analytical techniques for food monitoring with local relevance will be discussed in detail.

CHEM 7480 Food Microbiology for Chemists (1,1,0)
Prerequisite: Postgraduate standing
For students with minimal microbiology background, this course addresses the principles and applications of various analytical tools in food microbiological safety. Analytical techniques, both conventional and novel, for food microbiological safety monitoring with local relevance will be discussed in detail.

CHEM 7710 Current Topics in Chemistry (3,3,0)
Prerequisite: Research postgraduate student standing
This course is devoted to the study of important current topics in different areas of chemistry. Possible topics included Chemosensors and Biosensors, Advanced Polymer Chemistry, Structure and Chemistry of Nucleic Acids, Mass Spectrometry, Electroanalytical Chemistry, Total Synthesis of Natural Products, Physics and Chemistry in Display Technology.

CHEM 7720 Structural Methods in Chemistry (3,3,0)
Prerequisite: Research postgraduate student standing or consent of instructor
This course is aimed to introduce the various physical techniques commonly used in structure determination to the postgraduate research students in chemistry. The emphasis will be on the practical applications of these techniques in solving structural problems in chemistry rather than on a detailed discussion of the