

**CHEM 2510 Chemical Analysis (3,3,0) (E)**  
 Prerequisite: A-Level/AS-Level Chemistry or CHEM 1510 Chemistry for Life Science or equivalent chemistry course

This course emphasizes the presentation of the techniques and instrumentation involved in modern chemical analysis. This course is not for Chemistry majors.

**CHEM 2520 Chemical Analysis Laboratory (1,0,3) (E)**  
 Co-requisite: CHEM 2510 Chemical Analysis

This course provides students with the practical experience of applying the techniques studied in Chemical Analysis to the solution of analytical problems. This course is open to Applied Biology and Pharmacy in Chinese Medicine majors only.

**CHEM 3005 Instrumental Analysis (3,3,0) (E)**

Prerequisite: CHEM 2015 Analytical Chemistry

This course aims to educate students to understand the fundamental knowledge in the basic theory, structure, operating principle of chemical instrumentation which can aid in the analysis of a chemical system effectively.

**CHEM 3006 Instrumental Analysis Laboratory (1,0,3) (E)**

Prerequisite: CHEM 2015 Analytical Chemistry

Co-requisite: CHEM 3005 Instrumental Analysis

This course aims to allow students to practise the techniques they have learned in the corresponding lecture course in the laboratory.

**CHEM 3007 Physical Chemistry II (3.5,3,1) (E)**

Prerequisite: CHEM 2017 Physical Chemistry I

This course presents to students the physical concepts in quantum chemistry, chemical kinetics and symmetry, and is an important prerequisite to spectroscopic techniques in structure determination, applied spectroscopy and materials science.

**CHEM 3015 Inorganic Chemistry (3,3,0) (E)**

Prerequisite: CHEM 1005 Introduction to Chemistry; CHEM 2009 Organic Chemistry II; CHEM 3007 Physical Chemistry II

To provide students with a solid understanding of all the fundamental concepts and physical principles in inorganic chemistry and the relevance of these topics to our daily life. This course also aims at preparing the students for several advanced level courses such as Organometallic Chemistry, Organic Synthesis and Advanced Materials.

**CHEM 3016 Inorganic Chemistry Laboratory (1,0,3) (E)**

Co-requisite: CHEM 3015 Inorganic Chemistry

This course provides students with practical work related to the principles studied in Inorganic Chemistry.

**CHEM 3017 Physical Chemistry Laboratory II (1,0,3) (E)**

Prerequisite: Chemistry major students

This course provides students with practical experimental knowledge/skills related to the principles acquired from CHEM 2017 Physical Chemistry I and CHEM 3007 Physical Chemistry II.

**CHEM 3025 Chemical Analysis (3,3,0) (E)**

Prerequisite: NSS Level or CHEM 2026 Chemistry for Life Sciences or equivalent Chemistry course

This course aims to familiarize students with the principles of analytical chemistry and basic analytical techniques including volumetric, gravimetric and instrumental analysis. This course is not for Chemistry majors.

**CHEM 3026 Chemical Analysis Laboratory (1,0,3) (E)**

Co-requisite: CHEM 3025 Chemical Analysis

This course provides students with the practical experience of applying the techniques studied in Chemical Analysis to the solution of analytical problems.

**CHEM 3027 Materials Testing and Characterization (3,3,0) (E)**

Prerequisite: CHEM 2017 Physical Chemistry I or CHEM 2046 Physical and Inorganic Chemistry or consent of Instructors

Basic principles, methodologies, and instrumentation concerning major techniques for the characterization of the bulk properties of solid will be discussed. Emphasis will be placed on applications of the techniques in the characterization of materials of industrial importance, such as polymers, catalysts and adsorbents, electronic and other functional materials.

**CHEM 3150 Polymer Chemistry (3,3,0) (E)**

Prerequisite: CHEM 1112 Organic Chemistry II and CHEM 2310 Physical Chemistry II, or consent of instructor

This course is designed to introduce topics covering polymerization processes, characterization of polymers and polymer related technology.

**CHEM 3160 Chemical Information Search (1,1,0) (E)**

Prerequisite: CHEM 1112 Organic Chemistry II, CHEM 1260 Fundamentals of Chemistry, CHEM 2170 Instrumental Analysis and CHEM 2330 Physical Chemistry II

This course is designed to teach all Chemistry majors how to carry out an efficient search for chemical information from a variety of sources, including the primary and secondary chemical literature, the relevant scientific and technological databases and on the Internet. A hands-on workshop teaching approach will be adopted.

**CHEM 3170 Environmental Analysis (3,0,3) (E)**

Prerequisite: Chemistry major with Year III standing or CHEM 2510 Chemical Analysis

This course deals with the analysis of atmospheric, terrestrial and aquatic pollutants in the environment. An introduction of environmental quality models and modern monitoring techniques will also be covered.

**CHEM 3190 Spectroscopic Techniques for Structure Determination (3,3,0) (E)**

Prerequisite: CHEM 1112 Organic Chemistry II and CHEM 2330 Physical Chemistry II, or CHEM 2510 Chemical Analysis

This course covers the basic principles and applications of several major spectroscopic techniques used in the determination of molecular structures. The techniques to be discussed include infrared (IR), Raman, nuclear magnetic resonance (NMR), electron paramagnetic resonance (EPR) spectroscopy and mass spectrometry.

**CHEM 3210 Advanced Instrumental Analysis (3,3,0) (E)**

Prerequisite: CHEM 2170 Instrumental Analysis or CHEM 2510 Chemical Analysis

Basic principles, methodologies, and instrumentation concerning major analytical techniques, such as mass spectrometry, gas and liquid chromatography, electrochemistry, and atomic spectroscopy will be covered. Emphasis will be placed on the application of these analytical techniques to solving real-world problems, based on case studies borrowed from commercial and government laboratories. Such practical knowledge will be helpful to students in search for employments upon graduation, in which market demand for analytical chemists in Hong Kong/China should remain relatively high in the foreseeable future.

**CHEM 3220 Structural Methods in Chemistry (3,3,0) (E)**

Prerequisite: CHEM 1112 Organic Chemistry II and CHEM 2330 Physical Chemistry II

This course is aimed to introduce the various physical techniques commonly used in structure determination to students in chemistry. The emphasis will be on the practical applications of these techniques in solving structural problems in chemistry rather