

**SCI 2910 Logistics—Planning, Management, and Analysis (3,3,0)**

This course introduces the fundamental modelling techniques and analysis for logistics problems. This course will address all major issues in logistics. The course will mainly concentrate on establishing the mathematical models for various logistics problems. The solution techniques and algorithms will be also mentioned for the resulting mathematical problems. Numerous practical examples will be discussed and analysed to illustrate the modeling techniques for logistics problems. The students will learn through various examples illustrated in class to master the techniques in establishing the mathematical models for logistics problems. In addition, some computer packages will be also used to solve the resulting mathematical problems.

**SCI 3110 Environmental Chemistry and Pollution Control (3,3,0) (E)**

Prerequisite: Year III standing

This course describes the sources, transport, reactivity and sink of contaminants in the environment together with various technology options used for pollution control. The interconnection between air, water, land pollution and human activities will be addressed.

**SCI 3120 Environmental Studies Laboratory (1,0,3)**

Prerequisite: Year III standing (Environmental Studies Concentration)

These are practical sessions consisting of experiments utilizing the techniques commonly used in environmental studies. In addition to laboratory exercises, a field-based project will be undertaken. Visits to waste treatment plants and/or chemical industries in Hong Kong and neighbouring areas will be arranged at appropriate times. This course is open to Chemistry majors only.

**SCI 3210 Simulation (3,2,1) (E)**

Prerequisite: MATH 1111 Mathematical Analysis I, MATH 1140 Computational Mathematics, MATH 1550 Calculus and Linear Algebra, MATH 1570 Advanced Calculus or MATH 1590 Calculus and Linear Algebra for Chemistry

This course aims to introduce basic technique in computer simulation. Two computer software packages (one for continuous systems and one for discrete systems) will be taught. Various practical problems will be modelled, discussed, and simulated through computer simulation. Upon completion of this course, students should be able to simulate a wide range of practical problems in the daily life.

**SCI 3310 Industrial Chemical Processes (3,3,0)**

Prerequisite: (1) CHEM 1510 Chemistry for Life Science or CHEM 2310 Physical Chemistry II; and (2) MATH 1511 Mathematical Methods for Physical Science I, MATH 1550 Calculus and Linear Algebra or equivalent such as AS Level Applied Mathematics

The aim of this course is to familiarize students with the application of chemical principles learned from Year I and II Chemistry major courses in various chemical industries. Material balance and unit operations are treated with illustrations chosen from modern chemical and related industries.

**SCI 3450 Materials Science: Solid State, Surface Chemistry and Catalysis (3,3,0)**

Prerequisite: Chemistry or Physics Major with Year III standing  
This course provides a foundation of solid state and surface chemistry. It deals with the modern surface techniques and the application of surface science to various important industrial fields with particular reference to surface catalysis.

**SCI 3510 Mathematical and Statistical Modelling (3,3,1)**

Prerequisite: (1) MATH 1120 Linear Algebra and (2) MATH 2110 Differential Equations or MATH 2230 Operations Research I

This course aims to facilitate students' working knowledge of the basic principles of mathematical and statistical modelling. It is designed to equip students with an understanding of how mathematics can be applied to solve problems arising in various disciplines. The case study approach is adopted in which the modelling process is described by means of a number of examples with different characteristics. Where possible, problems are modelled in more than one way to illustrate the flexibility and diversity involved in mathematical modelling, and students will gain first hand experience in a mini-project.

**SCI 3530 Numerical Methods for Partial Differential Equations (3,3,0) (E)**

Prerequisite: MATH 2220 Partial Differential Equations or MATH 1511-2 Mathematical Methods for Physical Science I & II

This course introduces the major numerical techniques for solving partial differential equations. Emphasis is placed on finite difference methods and finite element methods. Some typical engineering problems, such as shock waves, are analysed.

**SCI 3710 Digital Image Analysis (3,3,0) (E)**

Prerequisite: MATH 1111 Mathematical Analysis I

This course aims to introduce students to the foundation of digital image analysis. Students will learn elementary point operation techniques for image enhancement, and advanced techniques (including the theory of Fourier transform) for image restoration and image analysis. Students will come to understand all the major issues involved in the design and implementation of a digital imaging system.

**SCI 7770 Materials Science: Solid State, Surface Chemistry and Catalysis (3,3,0)**

Prerequisite: Research Postgraduate student standing

This course provides a foundation of solid state and surface chemistry. It deals with the modern surface techniques and the application of surface science to various important industrial fields with particular reference to surface catalysis.

**SCIE 1005 Integrated Science Laboratory (1,0,3)**

This course provides students with basic foundation knowledge in laboratory and practical experience in solving real life problems by integrating knowledge from various science perspectives.

**SLM 7010 Foundations in Sport and Leisure Management (3,3,0) (E)**

This course aims to provide a common foundation for students by presenting a coherent vocabulary for conceptualizing and discussing trends and issues in sport and leisure management. It also aims to present a comprehensive perspective on subsequent courses within the programme and their relationships to sport and leisure management as a field of study.

**SLM 7020 Management Skills and Communications (3,3,0) (E)**

This course revisits the basic theories of management and communication in developing students to apply these fundamental concepts to analyse management scenarios related to the sport and leisure industry and to utilize their power of speech to increase effectiveness in interpersonal relationships and communications.

**SLM 7030 Management of Human Resources (3,3,0) (E)**

This course aims to provide students with opportunities to examine human resources management models and their applications in sport and leisure services. Issues on the management of finance as related to human resources management will also be discussed.