The Chinese University of Hong Kong
Faculty of Science
Science Academy for Young Talent

Summer Courses 2021
Course Outline

CUSA1101 Introduction to Environmental Chemistry
環境化學入門

Introduction:
Environmental chemistry deals with chemical processes occurring in the environment and the effects of human activities on them. This course intends to introduce the basic concepts of environmental chemistry and how the knowledge is applied to resolve environmental issues. Students will attend lectures on characteristics and chemical analysis of pollutants arising from human activities. Students will also learn the newest technologies of chemical treatment and pollution prevention. Equipped with scientific knowledge from the lectures, students will perform experiments to analyse pollutants in soil using advanced chemical instruments.

The CUHK community takes great care to conserve the campus ecology and environment. Other than classes, laboratory tour, campus tour and treasure hunt will be arranged for students to understand CUHK and our work for sustainable development, and to make the course more fruitful and enjoyable.

環境化學涉及化學物質在環境中的作用及人類活動對其的影響。本課程旨在介紹環境化學的基礎概念以及如何運用相關知識解決環境問題。課程內容包括污染物的特性、形成和化學分析。學生也會學習化學處理的尖端技術及預防污染的策略。學生將會運用課堂所學進行實驗，操作先進的化學儀器以分析泥土中的污染物。

中文大學十分重視校園生態和環境。為了令學生更了解中大以及大學推行可持續發展校園的工作，本課程也預備了實驗室參觀、校園遊及校園定向等活動，務求為學生帶來更充實和愉快的活動學習體驗。

Medium of Instruction: Cantonese supplemented with English

Organising Unit: Department of Chemistry, Faculty of Science, CUHK

Teachers: Dr. Chan Ka Long Donald
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Course Content:

19 July 2021 (Monday) 9:30 am – 12:30 pm 1:30 pm – 4:30 pm	**Lecture** • Basic concepts: chemical equilibria, acid-base reactions, redox reactions • Water pollution: elemental pollutants, inorganic species, organic pollutants • Air pollution: gaseous oxides, photochemical smog, particulate matter **Assessment** • Short-answer exercise **Group Activity** • Laboratory tour • Visit to the Jockey Club Museum of Climate Change
20 July 2021 (Tuesday) 9:30 am – 12:30 pm 1:30 pm – 4:30 pm	**Lecture** • Basic concepts: qualitative and quantitative analysis, measurement uncertainty • Techniques: sampling, extraction • Environmental instrumentation: spectrophotometric methods, chromatography **Experiment** • Determination of Volatile Organic Compounds (VOCs) in Soil by Gas Chromatography
21 July 2021 (Wednesday) 9:30 am – 12:30 pm	**Lecture** • Water treatment: removal of solids, removal of metals, disinfection • Air pollution control: catalytic converter, clean fuels • Safer chemicals, reactions and products
22 July 2021* (Thursday) 9:30 am – 12:30 pm 1:30 pm – 4:30 pm	Make-up Class

Duration	2.5 days sessions (total 15 contact hours)
Date	19 – 21 July 2021 22 July 2021* (Make-up class)
Time	19, 20 July 2021: 9:30 am – 12:30 pm, 1:30 pm – 4:30 pm 21 July 2021: 9:30 am – 12:30 pm
Teaching Mode#	Face to Face (The Chinese University of Hong Kong)
Enrollment	30
Expected Applicants	Students who are promoting to or studying S5-S6
Tuition Fee	HKD 3,200.00
Credit	1 Academy Unit Certificates or letters of completion will be awarded to students who attain at least 75% attendance.

* This date is reserved for make-up classes in case there is any cancellation of classes due to unexpected circumstances.
# This course is offered face-to-face lessons at CUHK campus. It may switch to online teaching, subject to the latest pandemic development.