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

Summer Courses 2023
Course Outline

SAYT1001 Bondings in Organic Compounds, and Reactivity and Selectivity of Organic Reactions
有機化合物的鍵合，與有機反應的活性及選擇性

Introduction: This course is designed to allow students to have a basic understanding about the bonding and structures of organic molecules and ions, and their influences on the molecular properties of organic compounds, and the reactivity and selectivity of some organic reactions. This course will focus on the stability of reaction intermediates, and the reactivity and selectivity of addition reactions, nucleophilic substitutions, eliminations, and electrophilic aromatic substitutions.

本課程設計旨在讓同學對有機分子及離子的鍵合及結構，及它們在有機分子的特性和有機反應的活性及選擇性的影響上有基礎的理解。本課程將會集中討論各類反應中間體的穩定性，及加成反應、親核取代反應、消除反應和親電芳香取代反應的活性及選擇性。

Medium of Instruction: English supplemented with Cantonese
英語主講及輔以粵語

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

Teachers:

Dr. MAK Kin Wah Kendrew (麥建華博士)
Senior Lecturer
Department of Chemistry, CUHK
Rm. 355, Science Centre South, CUHK
Tel: 3943 8136, Email: kendrewmak@cuhk.edu.hk

Course Content:

7 August 2023 (Monday) 9:30 am – 12:30 pm 2:00 pm – 5:00 pm	**Lecture and Activities:** • Basic atomic structure, chemical bonding and shape of molecules • Atomic orbitals (s, p, d, f) and electron configurations • Formation of σ-bonds and π-bonds • Orbital hybridization, bond formation and molecular shapes **Assessment:** • Multiple-choice and short-answer test
9 August 2023 (Wednesday) 9:30 am – 12:30 pm 2:00 pm – 5:00 pm	**Lecture and Activities:** • Delocalized electrons and resonance • Resonance structures and resonance stabilization • Nomenclature of organic compounds • Reaction of alkanes and alkenes • Reaction mechanism **Assessment:** • Multiple-choice and short-answer test
11 August 2023 (Friday) 9:30 am – 12:30 pm	**Lecture and Activities:** • Nucleophilic substitutions: S_N1 and S_N2 • Elimination reactions: E1 and E2 **Assessment:** • Multiple-choice and short-answer test
14 August 2023* (Monday) 9:30 am – 12:30 pm 2:00 pm – 5:00 pm	Make-up class

Duration	2.5 day sessions (total 15 contact hours)
Date	7, 9, 11 August 2023 14 August 2023* (make up class)
Time	9:30 am – 12:30 pm & 2:00 pm – 5:00 pm
Teaching Mode	Face to Face (The Chinese University of Hong Kong)
Enrollment	20 – 30
Expected Applicants	Students who are promoting to or studying S4 – S6
Tuition Fee	HKD 3,000.00
Credit	1 University Unit Certificate of completion will be awarded to students who pass the assessment (if applicable) and attain at least 75% attendance.
Grading Methods	Letter grades range from A to F.

** This date is reserved for make-up classes in case there is any cancellation of classes due to unexpected circumstances.*