THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title : Bachelor of Science (Honours) in Integrated Environmental Management and Bachelor of Education (Honours) (Science) (co-terminal double degree)
Programme QF Level : 5
Course Title : Foundation Science: Introduction to Chemistry
Course Code : **SCI2115**
Department/Unit : Science and Environmental Studies
Credit Points : 3
Contact Hours : 39 hours
Pre-requisite(s) : NIL
Medium of Instruction : EMI
Course Level : 2

Part II

The University's Graduate Attributes and seven Generic Intended Learning Outcomes (GILOs) represent the attributes of ideal EdUHK graduates and their expected qualities respectively. Learning outcomes work coherently at the University (GILOs), programme (Programme Intended Learning Outcomes) and course (Course Intended Learning Outcomes) levels to achieve the goal of nurturing students with important graduate attributes.

In gist, the Graduate Attributes for Sub-degree, Undergraduate, Taught Postgraduate, Professional Doctorate and Research Postgraduate students consist of the following three domains (i.e. in short "PEER & I"):

1. **P**rofessional **E**xcellence;
2. **E**thical **R**esponsibility; **&**
3. **I**nnovation.

The descriptors under these three domains are different for the three groups of students in order to reflect the respective level of Graduate Attributes.

The seven GILOs are:

1. Problem Solving Skills
2. Critical Thinking Skills
3. Creative Thinking Skills

4a. Oral Communication Skills

4b. Written Communication Skills

5. Social Interaction Skills
6. Ethical Decision Making
7. Global Perspectives

1. Course Synopsis

This course aims to assist students in developing an understanding of fundamental concepts in chemistry that are widely applicable to all fields of chemistry (Organic, Inorganic, Physical, and Analytical Chemistry) around the world. Students will use laboratory activities as the key means to develop their emerging understandings.

2. Course Intended Learning Outcomes ($CILO_s$)

Upon completion of this course, students will be able to:

$CILO_1$	Observe simple chemical reactions and solve calculations on chemical reactions;
$CILO_2$	Understand fundamental chemistry concepts that apply widely to the spectrum of organic, inorganic, physical, and analytical Chemistry chemistry fields;
$CILO_3$	Analyse and explain chemical phenomena at macroscopic, molecular/atomic, and symbolic levels;
$CILO_4$	Interpret the relation of evidence to the development of atomic and molecular theory and conceptual understanding in chemistry.

3. Content, CILOs, and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
• Elements of Chemistry	$CILO_{2,3}$	Lectures and tutorials
• Discovering the Atom and Subatomic Particles • The Atomic Nucleus	$CILO_{1,2,3}$	Lectures and tutorials
• Atomic Models • Chemical Bonding and Molecular Shapes	$CILO_{2,3,4}$	Lectures and tutorials
• An Overview of Chemical Reactions • Oxidation and Reduction • Acids and Bases	$CILO_{1,2,3,4}$	Lectures, tutorials, and experiments

4. Assessment

Assessment Tasks	Weighting (%)	CILO
(a) Examination	60	$CILO_{1,2,3,4}$
(b) Two laboratory reports	40	$CILO_{1,2,3,4}$

5. Use of Generative AI in Course Assessments

Please select one option only that applies to this course:

☐ ***Not Permitted***: In this course, the use of generative AI tools is not allowed for any assessment tasks.

☑ ***Permitted***: In this course, generative AI tools may be used in some or all assessment tasks. Instructors will provide specific instructions, including any restrictions or additional requirements (e.g., proper acknowledgment, reflective reports), during the first lesson and in relevant assessment briefs.

6. Required Text(s)

Nil

7. Recommended Readings

Atkins, P., de Paula, J. & Keeler, J. (2023). *Atkins' Physical Chemistry*, (12th ed.). Oxford University Press.

Brown, T. E., LeMay, H. E., **Bursten, B. E., Murphy, C., Woodward, P., Stolzfus, M. E.** (2023). *Chemistry: The Central Science* (15th ed.). Pearson.

Christian, G. (2013). *Analytical Chemistry* (7th ed.). John Wiley & Sons Inc

Housecroft, C. E. & Sharpe, A. E. (2018). *Inorganic Chemistry* (5th ed.). Pearson.

Solomons, T. W. G., Fryhle, C. B. & Snyder (2024) *Solomon's Organic Chemistry* (Global ed.). Wiley, New York.

Suchocki, J. (2014) *Conceptual chemistry: understanding our world of atoms and molecules* (5th ed.) San Francisco, Calif.: Benjamin Cummings

8. Related Web Resources

Chemistry Libre Text: The Chemistry LibreTexts library is a principal hub to improve undergradte chemistry education at all levels of higher learning.

General College Chemistry: It is an open-access textbook on general chemistry for undergraduate students.

Learn Chemistry: Chemistry Resources for Teachers: The Royal Society of Chemistry has created this most helpful website to help teachers and students of chemistry learn about the field via interactive experiments, diagrams, animations, and so on. The site includes over 3,300 resources.

Periodic Table of the Elements: Offers quick, easy factual information & images of the elements. Users can view basic details by "mousing" an element, such as its atomic weight, density, and melting point. The main page of each component displays more descriptive information.

9. Related Journals

American Chemical Society: ACS Publications provides high-quality *peer-reviewed journals, research articles, and information products and services supporting advancement across all chemistry fields.*

10. Academic Honesty

The University upholds the principles of honesty in all areas of academic work. We expect our students to conduct all academic activities honestly and in good faith. Please refer to the *Policy on Academic Honesty, Responsibility and Integrity* (https://www.eduhk.hk/re/uploads/docs/00000000001633679892454 8BbN5). Students should familiarize themselves with the Policy.

11. Others

Nil

Last update: July 2025