

SCCH 161 GENERAL CHEMISTRY

Semester 1 Academic year 2021 (Online course)

Date Thursday 13.30-16.30 Room SC2-152 Google classroom

Student Group EGBI, EGCG, EGII, SIPO

Instructors: Preeyanuch Junkong SC2-213 (Salaya) preeyanuch.jun@mahidol.ac.th
Suarwee Snitsirawat C310B (Phayathai) suarwee.sni@mahidol.ac.th
Department of Chemistry, Faculty of Science Mahidol University

Online platforms:

Invite link: <https://classroom.google.com/c/MzY5MzkwNTQzMDkw?cjc=du67oue>

Class code: du67oue

Google classroom (Post VDO clips)

Time: 01:30 PM ~

Google meet or others (Q&A Live)

Time: 01:30 PM ~ 03:00 PM

Course description

This course emphasizes the general principles in chemistry; atomic structure, chemical bonding, gases and kinetic molecular theory of gases, phase equilibria, solutions and colloids, periodic table, representative and transition metals, chemical thermodynamics, chemical kinetics, ionic equilibria, electrochemistry

No	Date	Topics	Instructor
1	August 12, 2021	H.M. Queen Sirikit's Birthday (Mother's Day)	
2	August 19, 2021	Introduction to Chemistry: Definition of chemistry, International system of unit (SI), Scientific notation, Significant figures, Accuracy and precision etc.	Preeyanuch Junkong
3	August 26, 2021	Atomic structure: Atomic structure, Quantum theory, Electron configuration, etc.	Preeyanuch Junkong
4	September 2, 2021	Chemical bonding I: The ionic bond, the covalent bond, writing Lewis structure, etc.	Preeyanuch Junkong
5	September 9, 2021	Chemical bonding II: Molecular geometry (VSEPR model), Hybridization of atomic orbitals, Molecular orbital theory (MO), etc.	Preeyanuch Junkong
6	September 16, 2021	Gas: Physical characteristics of gases, The gas laws, gas stoichiometry, Dalton's law of Partial pressure, kinetic molecular theory of gases, etc.	Preeyanuch Junkong
7	September 23, 2021	Liquid, Solids and Phase equilibria: Characteristics properties of gases, liquid and solids, Intermolecular forces, properties of liquid, crystalline solid, amorphous solid, phase change, etc.	Preeyanuch Junkong
8	September 30, 2021	Solutions: Types of solution, Solution process, Concentration unit, Solubility and factors, Colligative properties, Colloids and suspension, etc.	Preeyanuch Junkong
9	October 4-8, 2021	MIDTERM Examination	Preeyanuch Junkong
10	October 14, 2021	Thermochemistry: introduction, enthalpy and chemical reactions, laws of thermodynamics, Gibbs free energy and chemical equilibrium	Suarwee Snitsirawat

No	Date	Topics	Instructor
11	October 21, 2021	Thermochemistry: introduction, enthalpy and chemical reactions, laws of thermodynamics, Gibbs free energy and chemical equilibrium	Suarwee Snitsiriwat
12	October 28, 2021	Chemical kinetics: rate of reaction and rate law, reaction mechanisms, relationship between reactant concentration and time, activation energy	Suarwee Snitsiriwat
13	November 4, 2021	Chemical kinetics: rate of reaction and rate law, reaction mechanisms, relationship between reactant concentration and time, activation energy	Suarwee Snitsiriwat
14	November 11, 2021	Ionic equilibria: equilibrium constant and factors that affect chemical equilibrium, definitions of acids and bases, ionization constant, molecular structure and strength of acids, buffer solutions and acid-base titrations	Suarwee Snitsiriwat
15	November 18, 2021	Ionic equilibria: equilibrium constant and factors that affect chemical equilibrium, definitions of acids and bases, ionization constant, molecular structure and strength of acids, buffer solutions and acid-base titrations	Suarwee Snitsiriwat
16	November 25, 2021	Electrochemistry: redox reactions, galvanic cells, standard reduction potentials, spontaneity of redox reactions, effect of concentration on cell EMF	Suarwee Snitsiriwat
18	November 29 - December 10, 2020	Final Examination	Suarwee Snitsiriwat

Note: Depending on the situation, this schedule can be changed. Please check the announcement in Google classroom.

Letter grades of A, B+, B, C+, C, D+, D, and F will be given according to the student's score.

Score (100):	Attendance	5%
	Homework/Assignment	15%
	Quiz	20%
	Midterm Exam	30%
	Final Exam	30%

Note: This student evaluation is in accordance with the rules and regulations of the Faculty of Science, Mahidol University regarding the COVID-19 in case of suspension of lecture class and examination.

Reference:

- Hill, J.W. and Petrucci, R.H. General Chemistry, An Integrated Approach. 3th Edition. USA: Prentice Hall. 2002.
- Atkin, P.W. Atkin's Molecules. 2nd Edition. UK: Cambridge University Press. 2003.
- Middlecamp, C.H. et al. Chemistry in Context: Applying Chemistry to Society. 7th Edition., USA: McGraw-Hill. 2012.
- Chang, R. Chemistry. 9th Edition. New York: McGraw-Hill, 2007. (Latest version)