SCCH 152 General Chemistry II (3 credits)
2/2022

Course Coordinator: Asst. Prof. Dr. Manthana Jariyaboon (manthana.jar@mahidol.ac.th)

Instructors: Assoc. Prof. Dr. Supa Wiraste (supa.wir@mahidol.ac.th)
Asst. Prof. Dr. Manthana Jariyaboon (manthana.jar@mahidol.ac.th)

Class Schedule: Wednesday: 9.30 a.m. – 12.30 p.m.

Google classroom class code: 24c2qv7 (All announcements will be posted in google classroom.)

Room: SC2-322

Course Goals

The main goal of this course is to provide a broad foundation in chemistry in the topics of thermodynamics, kinetics, properties of matters, equilibria and electrochemistry. Students should be able to apply and integrate basic concepts gained from this course to their study in upper-level courses and to solve chemistry problems. Students can communicate their ideas on how to solve chemistry problems.

Course-Level Learning Outcomes: CLOs

After completion of this course, students are able to:

CLO1 Describe the principles and theories in the following topics: chemical thermodynamics, nature and types of energy, laws of thermodynamics and chemical reaction, rate of reaction, rate law, reaction mechanism, chemical equilibrium, acid-base equilibria, solubility equilibria, factors that affect equilibria, redox reaction, galvanic and electrolytic cell, applications of electrochemistry, physical and chemical properties of gas, liquid and solution.

CLO2 Apply appropriate chemistry concepts to solve uncomplicated chemistry problems in the following areas: chemical thermodynamics, chemical kinetics, equilibria, electrochemistry, gas, liquid, solid and solutions.

CLO3 Use appropriate calculation to solve quantitative problems in the following areas: chemical thermodynamics, chemical kinetics, equilibria, electrochemistry, gas, liquid, solid and solutions.

CLO4 Communicate their ideas effectively in written form how to solve uncomplicated chemistry problems based on basic concepts gained from this course.

Schedule

Week	Date	Topic	Hrs.	Instructor
Wednesday: 9.30 a.m. – 12.30 p.m.				**Room: SC2-322**
1	11 Jan 2023	Introduction, Chemical Thermodynamics	3	Dr. Manthana
2	18 Jan 2023	Chemical Thermodynamics	3	
3	25 Jan 2023	Chemical Kinetics	3	
4	1 Feb 2023	Chemical Kinetics, Chemical Equilibrium	3	
5	8 Feb 2023	Chemical Equilibrium, Acid-base Equilibria	3	
6	15 Feb 2023	Acid-base Equilibria and Solubility Equilibria	3	
7	22 Feb 2023	Acid-base Equilibria and Solubility Equilibria	3	
8	1 March 2023	Q&A	3	
9	7-10 March 2023	Midterm Exam Week		
10	15 March 2023	Electrochemistry	3	Dr. Supa
11	22 March 2023	Electrochemistry	3	
12	29 March 2023	Gases, solid, liquid, and solutions	3	
13	5 April 2023	Gases, solid, liquid, and solutions	3	
14	12 April 2023	Gases, solid, liquid, and solutions	3	
16	19 April 2023	Gases, solid, liquid, and solutions	3	
17	26 April 2023	Q&A	3	
18	1-12 May 2023	Final Exam Week		

Texts and main documents

- Catherine H. Middlecamp, et al. Chemistry in Context: Applying Chemistry to Society. 7th ed., New York: McGraw-Hill; 2012.
- Chang, R. Chemistry 13th ed. (International ed.). USA: McGraw-Hill, Inc.; 2019.
- Olmsted, J. A. and Williams, G. W. *Chemistry*. 4th ed. USA: John Wiley & Sons, Inc.; 2005.
- McMurry, J. and Fay, R.C. *Chemistry*. 4th ed. USA: Prentice Hall; 2004.
- Oxtoby, D. W.; Gillis, H. P. and Campoin, A. *Principles of Modern Chemistry*. 7th ed. USA: Thomson Brooks; 2012.
- Hill, J.W. and Petrucci, R.H. General Chemistry, An Integrated Approach. 3rd edition. USA: Prentice Hall; 2002.