SCCH 152 General Chemistry II (3 credits)

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

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

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

Google classroom class code: j2vdov2

Room: SC1-157 (onsite/or hybrid class when permitted)

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 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.

Evaluation:

homework/assignment	15 %
Quiz	15 %
Exam (Midterm 35%, Final 35%)	70%
Total	100 %

Score (percentage)	Symbols
75-100	A
69-74	B+
62-68	B
55-61	C+
48-54	C
42-47	D+
36-41	D
0- 35	F

Schedule

Week	Date	Topic	Hrs.	Instructor
Week 1-8: Live online class**				
1	20 Jan. 21	Chemical Thermodynamics	3	Dr. Manthana Jariyaboon
2	27 Jan. 21	Chemical Thermodynamics	3	
3	3 Feb. 21	Chemical Thermodynamic, Chemical Kinetics	3	
4	10 Feb. 21	Chemical Kinetics	3	
5	17 Feb. 21	Chemical Equilibrium	3	
6	24 Feb. 21	Chemical Equilibrium, Acid-base Equilibria and Solubility Equilibria	3	
7	3 Mar. 21	Acid-base Equilibria and Solubility Equilibria	3	
8	10 Mar. 21	Acid-base Equilibria and Solubility Equilibria	3	
9	15-19 Mar. 21	Midterm Exam Week		
Week 10-16: Live online class**				
10	24 Mar. 21	Electrochemistry	3	Dr. Supa Wirasate
11	31 Mar. 21	Electrochemistry	3	
12	7 Apr. 21	Gases, solid, liquid, and solutions	3	
13	14 Apr. 21	No class (Songkran day)		
14	21 Apr. 21	Gases, solid, liquid, and solutions	3	

Week	Date	Topic	Hrs.	Instructor
15	28 Apr. 21	Gases, solid, liquid, and solutions	3	Dr. Supa
16	5 May 21	Gases, solid, liquid, and solutions	3	Wirasate
17	10-21 May 21	Final Exam Week		

**** Remain subject to change dependent on the changing circumstances of COVID-19.**

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.