2019 Fall

TIGP Sustainable Chemical Science and Technology Program

Introduction to Sustainable Chemical Science and Technology

Period: 2019/Sep. - 2020/Jan.
Classroom: B105, IoC, AS
Time: AM09:10-12:00

Goals:
1. Know the backgrounds and chemistry of sustainability-related issues.
2. Learn the spirit of green chemistry and the challenges/opportunities in the real world.
3. Get exposed to important research directions.

Theme			
1	**Importance of Chemistry, Course Expectation, and Literature Search Skill**	Chao, Ito	2019/9/11
2	**Chemistry Related Global Challenges**		
	2.1 Climate Change and Our Future Alternative Energy	Chen, Chin-Ti	2019/9/18
	2.2 Global Materials Cycling (Carbon Cycle, Nitrogen Cycle, Ocean Acidification, Heavy Metals...)	Hung, Chen-Hsiung	2019/9/25
	2.3 Environmental Impact of Chemicals (Organic Toxic Compounds, Persistent Compounds, Ozone Hole...)	Chou, Charles C.-K.	2019/10/2
3	**Sustainability and Green Chemistry**	Chao, Ito	2019/10/9 2019/10/16
	3.1 Spirits		
	3.2 Principles		
	3.3 Metrics to Evaluate Greeness and Life Cycle Analysis		
	3.4 Alternative Reaction Energy Sources (Microwave, Mechano, Ultrasound, Flow...)	Lin, Chih-Hsiu	2019/10/23
	***** Mid-Term Exam Week *****	**No Class**	2019/10/30
	3.5 Catalysis (Heterogeneous, Homogeneous, Phase Transfer, Bio, Photo, and the more recent Organo, Earth Abundant Element...)	Chiang, Ming-Hsi	2019/11/6 2019/11/13
	3.6 Solvents (water, supercritical fluids, ionic liquids, switchable solvents, bio-based solvents...)	Chein, Rong-Jie	2019/11/20
	3.7 Basic Toxicology, Bioremediation, and Design Principles for Degradation/Less	Li, Wen-Shan	2019/11/27
	3.8 Some Real World Cases in Industry	Chao, Ito	2019/12/4
	3.9 Challenges in Green Chemistry		
4	**Energy Related Technologies**		
	4.1 Photoenergy Related Science and Technologies	Chen, Chin-Ti	2019/12/11
	4.2 Batteries, Fuel Cells/H_2 Generation	Yen, Hung-Ju/ Chiang, Ming-Hsi	2019/12/18
	4.3 Energy Conversion and Energy Saving Technology and Materials (Photochromic, Electrochromic, Thermochromic)	Yen, Hung-Ju	2019/12/25
	***** Semester Report deadline*****	**No class**	2020/1/8

Note: 2020/1/1 New Year (National Day)