

2018 Fall

TIGP Sustainable Chemical Science and Technology Program			
Introduction to Sustainable Chemical Science and Technology			
Period: 2018/Sep. - 2019/Jan. Classroom: B105, IoC, AS Time: AM9:00-12:00			
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	2018/9/12
2	Chemistry Related Global Challenges		
	2.1 Global Materials Cycling (Carbon Cycle, Nitrogen Cycle, Ocean Acidification, Heavy Metals...)	Hung, Chen-Hsiung	2018/9/19
	2.2 Climate Change and Our Future Alternative Energy	Chen, Chin-Ti	2018/10/3
	2.3 Environmental Impact of Chemicals (Organic Toxic Compounds, Persistent Compounds, Ozone Hole...)	Chou, Charles C.-K.	2018/10/4 (Thur.) p.m. 1:30-4:30
3	Sustainability and Green Chemistry		
	3.1 Spirits	Chao, Ito	2018/10/17 2018/10/24
	3.2 Principles		
	3.3 Metrics to Evaluate Greenness and Life Cycle Analysis		
	3.4 Alternative Reaction Energy Sources (Microwave, Mechano, Ultrasound, Flow...)	Lin, Chih-Hsiu	2018/10/31
	*** Mid Term Exam***	Chao, Ito	2018/11/7
	3.5 Catalysis (Heterogeneous, Homogeneous, Phase Transfer, Bio, Photo, and the more recent Organo, Earth Abundant Element...)	Chiang, Ming-Hsi	2018/11/14 2018/11/21
	3.6 Solvents (water, supercritical fluids, ionic liquids, switchable solvents, bio-based solvents...)	Chein, Rong-Jie	2018/11/28
	3.7 Basic Toxicology, Bioremediation, and Design Principles for Degradation/Less	Li, Wen-Shan	2018/12/5
	3.8 Some Real World Cases in Industry	Chao, Ito	2018/12/12
	3.9 Challenges in Green Chemistry		
4	Energy Related Technologies		
	4.1 Photoenergy Related Science and Technologies	Chen, Chin-Ti	2018/12/19
	4.2 Batteries, Fuel Cells/H ₂ Generation	Yen, Hung-Ju/ Chiang, Ming-Hsi	2018/12/26
	4.3 Energy Conversion and Energy Saving Technology and Materials (Photochromic, Electrochromic, Thermochromic)	Yu, Hsiao-hua/ Yen, Hung-Ju	2019/1/2
	*** Final Exam***	Chao, Ito	2019/1/9

Note: 2018/10/10 National Day