

TIGP Sustainable Chemical Science and Technology Program			
Introduction to Sustainable Chemical Science and Technology			
Period: 2017/Sep. - 2018/Jan. Classroom: A507, 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	2017/9/13
2	Chemistry Related Global Challenges		
	2.1 Global Materials Cycling (Carbon Cycle, Nitrogen Cycle, Ocean Acidification, Heavy Metals...)	Hung, Chen-Hsiung	2017/9/20
	2.2 Environmental Impact of Chemicals (Organic Toxic Compounds, Persistent Compounds, Ozone Hole...)	Chou, Charles C.-K.	2017/9/27
	2.3 Climate Change and Our Future Alternative Energy	Chen, Chin-Ti	2017/10/11
3	Sustainability and Green Chemistry		
	3.1 Spirits	Chao, Ito	2017/10/18
	3.2 Principles		2017/10/25
	3.3 Metrics to Evaluate Greenness and Life Cycle Analysis		
	3.4 Alternative Reaction Energy Sources (Microwave, Mechano, Ultrasound, Flow...)	Lin, Chih-Hsiu	2017/11/1
	*** Mid Term Exam***		2017/11/8
	3.5 Solvents (water, supercritical fluids, ionic liquids, switchable solvents, bio-based solvents...)	Chein, Rong-Jie	2017/11/15
	3.6 Catalysis (Heterogeneous, Homogeneous, Phase Transfer, Bio, Photo, and the more recent Organo, Earth Abundant Element...)	Chiang, Ming-Hsi	2017/11/22 2017/11/29
	3.7 Basic Toxicology, Bioremediation, and Design Principles for Degradation/Less	Li, Wen-Shan	2017/12/6
	3.8 Some Real World Cases in Industry	Chao, Ito	2017/12/13
	3.9 Challenges in Green Chemistry		
4	Energy Related Technologies		
	4.1 Photoenergy Related Science and Technologies	Chen, Chin-Ti	2017/12/20
	4.2 Fuel Cells, Batteries, Capacitors, and Other Energy Conversion Materials	Lin, Jiann-T'suen/ Yu, Hsiao-hua	2017/12/27
	4.3 Energy Saving Technology and Materials (Photochromic, Electrochromic, Thermochromic)	Yen, Hung-Ju	2018/1/3
	4.4 Carbon Capture and Storage	Lu, Kuang-Lieh	
	*** Final Exam***		2018/1/10

Note: 2017/10/04 is Mid-Autumn Festival