

2023 Fall

TIGP Sustainable Chemical Science and Technology Program			
Introduction to Sustainable Chemical Science and Technology			
Period: 2023/Sep. - 2023/Dec. 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	Hung, Chen-Hsiung	2023/9/13
2	Chemistry Related Global Challenges		
	2.1 Global Materials Cycling (Carbon Cycle, Nitrogen Cycle, Ocean Acidification, Heavy Metals...)	Hung, Chen-Hsiung	2023/9/20
	2.2 Climate Change and Our Future Alternative Energy	Chen, Chin-Ti	2023/9/27
	2.3 Water Scarcity and Sustainable Water Supply - Principles and Chemistry	Chuan, Yi-Hsueh	2023/10/4
	2.4 Environmental Impact of Chemicals (Organic Toxic Compounds, Persistent Compounds, Ozone Hole...)	Chou, Charles C.-K.	2023/10/11
	2.5 Catalysis for Control of Atmospheric Pollutants - An Introduction	Lin, Liang-Yi	2023/10/18
3	Sustainability and Green Chemistry		
	3.1 Spirits	Hung, Chen-Hsiung	2023/10/25
	3.2 Principles		2023/11/1
	3.3 Metrics to Evaluate Greenness and Life Cycle Analysis		
	*** Midterm Report Submission Deadline***	No Class	2023/11/8
	3.4 Solvents (water, supercritical fluids, ionic liquids, switchable solvents, bio-based solvents...)	Chein, Rong-Jie	2023/11/16
	3.5 Alternative Reaction Energy Sources (Microwave, Mechano, Ultrasound, Flow...)	Lin, Chih-Hsiu	2023/11/22
	3.6 Catalysis (Heterogeneous, Homogeneous, Phase Transfer, Bio, Photo, and the more recent Organo, Earth Abundant Element...)	Chiang, Ming-Hsi	2023/11/29 2023/12/6
	3.7 Basic Toxicology, Bioremediation, and Design Principles for Degradation/Less	Li, Wen-Shan	2023/12/13
	3.8 Some Real World Cases in Industry	Hung, Chen-Hsiung	2023/12/20
	3.9 Challenges in Green Chemistry		
	Final Report Submission Deadline	No Class	2023/12/27