

2025 Fall

TIGP Sustainable Chemical Science and Technology Program
Introduction to Sustainable Chemical Science and Technology

Period: 2025/Sep. - 2025/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	2025/09/03
2	Chemistry Related Global Challenges		
	2.1 Global Materials Cycling (Carbon Cycle, Nitrogen Cycle, Ocean Acidification, Heavy Metals...)	Hung, Chen-Hsiung	2025/09/10
	2.2 Climate Change and Our Future Alternative Energy	Hou, Cheng-Yi	2025/09/17
	2.3 Water Scarcity and Sustainable Water Supply - Principles and Chemistry	Chuan, Yi-Hsueh	2025/09/24
	2.4 Environmental Impact of Chemicals (Organic Toxic Compounds, Persistent Compounds, Ozone Hole...)	Chou, Charles C.-K.	2025/10/01
	2.5 Catalysis for Control of Atmospheric Pollutants - An Introduction	Lin, Liang-Yi	2025/10/08
3	Sustainability and Green Chemistry		
	3.1 Spirits	Hung, Chen-Hsiung	2025/10/15
	3.2 Principles		2025/10/22
	3.3 Metrics to Evaluate Greenness and Life Cycle Analysis		
*** Midterm Report Submission Deadline***			2025/10/29
	3.4 Alternative Reaction Energy Sources (Microwave, Mechano, Ultrasound, Flow...)	Lin, Chih-Hsiu	2025/11/05
	3.5 Solvents (water, supercritical fluids, ionic liquids, switchable solvents, bio-based solvents...)	Chein, Rong-Jie	2025/11/12
	3.6 Catalysis (Heterogeneous, Homogeneous, Phase Transfer, Bio, Photo, and the more recent Organo, Earth Abundant Element...)	Chiang, Ming-Hsi	2025/11/19 2025/11/26
	3.7 Basic Toxicology, Bioremediation, and Design Principles for Degradation/Less	Li, Wen-Shan	2025/12/03
	3.8 Some Real World Cases in Industry	Hung, Chen-Hsiung	2025/12/10
	3.9 Challenges in Green Chemistry		
Final Report Submission Deadline			2025/12/17