13

CLIMATE ACTION

2018-2022 Publications **123**

Course Units **86**

Student Engagements with Units on SDG 13 **2,679**

2018-2022 Percentage of all Taiwan Publications **3.9%**

Research

CO2 Conversion Technology

The use of various metal oxide catalysts to enable CO2 hydrogenation to methane and methanol is current a popular area of research. The research team led by Assistant Professor Sung-Fu Hung of NYCU's Department of Applied Chemistry found that metal-supported single atoms enable CO2 hydrogenation, which can not only reduce greenhouse gas emissions, but also turn carbon dioxide into chemical substances with high added value. The findings of this research have been published in the internationally renowned journal *Nature Communications*. To slow down climate change, Assistant Professor Liang-Yi Lin of the Institute of Environmental Engineering is conducting a systematic analysis of photochemical mechanisms, designing catalytically active materials to significantly improve CO2 conversion efficiency. The research findings have been published in the book *Aerosols: Science and Engineering*.

Promoting Taiwan’ s Transition to Net-Zero Emissions

To accelerate Taiwan’ s transition to net-zero emissions, Professor Bing-Chwen Yang of the Institute of Lighting and Energy Photonics explored Taiwan’ s advantage of being surrounded by the ocean; in addition, he researched how to develop suitable carbon storage sites to store carbon dioxide for Taiwan’ s coal-fired power plants and natural gas power plants, which will supply a larger proportion of power in the future, through environment assessments, policy support, the latest technology, communication with the public, and industry resources. The results of this research can help Taiwan reach the goal of net-zero emissions by 2050, and have been published in the *Journal of Taiwan Energy*.

13 CLIMATE ACTION

Social Impact

ESG Enterprise Technology Leader Lecture

In response to global environmental changes and sustainable development issues, NYCU and Global Views Monthly worked together to organized the "ESG Enterprise Technology Leader Lecture" on the topic of "Technology Driven Net-Zero Future." Professors from the College of Management and leaders of 10 ESG index companies shared their experience on the topic, covering traditional industries, electronic technology, finance, the service industry, etc. The lecture was open to those interested in ESG related issues, enabling employees to better understand the meaning of moving towards carbon neutrality and decarbonization as well as action plans to do so, implementing relevant theories into corporate operations to achieve carbon reduction and sustainable development goals.

ESG Sustainability Strategy Forum

To contribute to corporate sustainability and social responsibility issues, and expand their influence on NYCU, industry, and society, NYCU's Research Center for Taiwanese Enterprise opened a series of courses entitled "ESG Sustainability Strategy Forum," covering three major topics: corporate social responsibility and legal compliance, corporate environmental footprint and sustainability reports, and corporate sustainable operations and investment strategies. The courses enable industry figures to understand corporate social responsibility trends, how to effectively disclose sustainability information, how to formulate corporate sustainability strategies, and how to respond to corporate sustainability transformation and other related issues.

Education & Cultivation

Climate Action Related Courses

Global warming has continued to intensify. Facing the impact of climate change, NYCU offers many courses related to climate actions, such as "Sustainability Governance," "Climate Change Response and Adaptation," "Green Building Information Modeling," and "ESG Investment Practice and Application," hoping to strengthen students' awareness and knowledge of the current situation and impact of global climate change and disasters from an educational standpoint, instill values of caring and justice regarding the huge impact climate change has on disadvantaged people, and encourage intentions and actions to achieve lower carbon footprints and net-zero emissions.

Climate Change and Natural Carbon Storage Summer Course

NYCU's Institute of Business & Management teamed up with the Taiwan Association of Environmental and Resource Economics (TAERE) to jointly organize the summer course "Climate Change and Natural Carbon Storage," which introduces students to climate change policies in the US as well as theories and examples of carbon capture, carbon storage, and carbon sink exchange, and explains how to construct models for predicting climate change to respond to its impacts.

Stewardship

Net-Zero Emissions by 2050

Facing the impact and challenges that climate change poses on human kind, NYCU began planning and formulating a declaration of net-zero emissions in 2022 based on Taiwan’ s four major transformation strategies to achieve net zero emissions by 2050: "energy transformation," "industry transformation," "life transformation," and "social transformation," proposing corresponding goals and implementation plans in hopes of reaching the goal of net zero emissions by 2050 with the rest of the world. The following are strategies proposed by NYCU:

- Encourage faculty members and students to engage in studies on "energy transition" and "industrial transition" and to strive for the vision of ensuring mutual prosperity in the environment, ecosystem, and society throughout advances in technology, economy, and lifestyle.
- Expand the use of renewable energy and green energy, concurrently implement paperless and digital campus policies, and conduct regular inventory of GHG emissions and review improvement progress by using data evidence.
- Introduce various energy conservation tools, create an eco-friendly learning and living environment, and achieve the "lifestyle transition" goals.
- Fulfill the university’ s social responsibilities, actively offer courses and activities related to sustainable development, improve stakeholders’ knowledge of net zero emissions and raise their awareness of their responsibilities as global citizens, and promote "social transition."
- Connect local industries, campuses of all levels, and neighboring communities to jointly take actions in response to the country’ s four major ESG transition strategies and create a circle of net zero living.