

# 13

## CLIMATE ACTION

*Take urgent action to combat climate change and its impacts.  
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101



Publications in SCOPUS

29



Course units

3.7%



Percentage of all Taiwan publications

705



Students who chose the course units

## Research

### Developing Technology to Control and Reduce Greenhouse Gas Emissions

Many NYCU professors are devoted to the research and development of technology that can help regulate and control greenhouse gas emissions. For example, Assistant Professor Liang-Yi Lin of the Institute of Environmental Engineering is developing technology to capture and reuse carbon dioxide, Professor Bing-Chwen Yang of the College of Photonics is researching technology to capture, use, and store carbon dioxide, and the 2020 Yushan Young Scholar, Professor Sung-Fu Hung, is conducting research on carbon dioxide reduction catalysts. Through these research efforts, NYCU hopes to effectively help Taiwan achieve net zero emissions by 2050.

### Sparing No Effort to Help Industries Reduce PM2.5 Emissions

Chair Professor Chuen-Jinn Tsai of the Institute of Environmental Engineering won the "2021 MOST Research Fellows Award" for his research on fine particulate matter (PM2.5). PM2.5 in the air accumulates in the human body and is harmful to people's health in the long term. Therefore, Professor Tsai established the "Nanoparticles and Air Quality Laboratory" to conduct research on PM2.5, aerosol sampling and analysis instruments, and air quality control technology, helping industries reduce PM2.5 emissions and making significant contributions to the improvement of Taiwan's environment.

## Social Impact

### Sustainable Development City and Green Energy Technology: Creating a Vision of Industry-Academia Integration

President Ing-Wen Tsai attended the opening ceremony of NYCU's Tainan campus. It is hoped that the completion of the Tainan campus will drive the development of smart technology and green energy and allow a diverse and innovative smart green energy industry ecosystem to take shape in southern Taiwan. NYCU was the first resident of the Tainan City Government's "Shalun Green Energy Technology Demonstration Site." In addition, NYCU has established the "College of Artificial Intelligence" at the Tainan campus, hoping to drive and strengthen the synergy of Tainan's industry—university research, with "energy conservation," "energy generation," "energy storage," and "smart system integration" as the main focuses. In December 2021, the Tainan City Government Economic Development Bureau held the "Green Energy Industry—Industry—Government—Academia Research Workshop and Green Energy Achievement Symposium" at the Zhiyuan Building of NYCU's Tainan campus. With the theme of green energy, the symposium discussed topics such as carbon reduction and smart technology applications, as well as the establishment of a green industry ecosystem. Professor Bing-Chwen Yang of the NYCU College of Photonics also gave an introduction to the development and potential of the "Shalun Green Energy Technology Demonstration Site."



## Student Cultivation

### Learning About Climate Change and Sustainability Issues Through Open Courses

NYCU's open-course platform invites experts and academics to give lectures on topics related to climate change as part of each year's general education curriculum. Lecture topics include "Climate Change Response and Adaptation" and "Living with Climate Change: New Opportunities for Taiwan," which discuss the current situation with climate change and delve into the relationship between natural disasters, human activities, and climate change trends in Taiwan. Through the open-course platform "ewant," colleges and universities across Taiwan can upload and share their general education courses, allowing the public to enrich their knowledge and achieve lifelong learning. In particular, the "Healthy Planet, Sustainable Future" series of courses introduces students to sustainable issues such as "sustainable use of water and material resources," "renewable energy and the climate," and "nature conservation and community-based economics."

### Air Quality Knowledge, Action, and Creativity Competition

The Environmental Protection Agency of the Executive Yuan held the "2021 Air Quality Knowledge, Action, and Creativity Competition" to promote environmental education. Contestants could learn about air quality policies through the public information disclosed by government agencies, and in doing so, determine whether the public information on air quality met the expectations of the public. The competition also encouraged students to provide new creative ideas for air quality control policies. Accordingly, a team of three undergraduate students from NYCU's College of Medicine, Chen-Ai Hao, Ying-Tsen Lin, and Yu-Ju Shih, designed a personal air pollution warning app "Air Pollution Action Piggy Bank" with guidance from Professor Kai Hsien Chi, winning the Outstanding Award.



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## Stewardship

### Implementing Indoor Air Quality Management

To maintain the indoor air quality on campus and protect the health of faculty members and students, the NYCU Chiaotung campus implements campus indoor-air-quality monitoring and maintenance measures. To encourage institutions and facilities to implement independent indoor-air-quality maintenance and management, the Hsinchu City Environmental Protection Bureau held the “2020 Hsinchu City Indoor Air Quality Evaluation,” and from that, the Chiaotung campus library received the “2020 Hsinchu City Indoor Air Quality Excellence” award for its reading space and air quality monitoring.

1. January 2021, NYCU received the Taipei City Government Department of Environmental Protection Indoor Air Quality Certification.
2. September 2021, NYCU received the EPA Indoor Air Quality Certification.



### Carbon Reduction Policies

The NYCU “Energy Management Committee” formulates plans to save energy and reduce carbon emissions.

1. Thanks to its replacement of traditional lighting with LED lights, currently, LED lights account for 85% of the lighting in the Yangming campus and 95% of the lighting in the Chiaotung campus.
2. All faculty and student dormitories at the Yangming campus have been switched to heat pump systems/solar water heaters.
3. Thanks to changes of these kinds, the greenhouse gas emissions in 2021 were reduced by 7% from the previous three years, and renewable energy accounted for 2.89% of total energy use.

