

2022

NATIONAL
YANG MING CHIAO TUNG
UNIVERSITY

SUSTAINABLE
DEVELOPMENT  GOALS

Sustainable Development Annual Report

National Yang Ming Chiao Tung University

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In the face of challenges such as extreme climate event-triggered environmental threats, rising geopolitical risks, and international conflicts that are verging on catastrophe, the United Nations has called on countries worldwide to renew their pursuit of the 17 Sustainable Development Goals (SDGs), which serve as a guide for countries to integrate environmental, social, and economic aspects of sustainability into their development process to achieve holistic prosperity. In particular, in the past few years, the COVID-19 pandemic and the Russia-Ukraine War have seriously impacted global supply chains and economic development. The question of how to improve our resilience so we are prepared to tackle and overcome the future challenges associated with these uncertain times is one the world must be asking right now.

As a leading university in Taiwan, National Yang Ming Chiao Tung University (NYCU), formed by a merger in February 2021, must continue the legacy of the two elite universities it embodies. To that end, it shall address global sustainable development issues by exerting social influence and devoting its teaching, research and development, and resources to promote sustainable development.

The university (in its two previous forms) has long supported the SDGs' achievement through academic research, social engagement, education and talent cultivation, and campus sustainability initiatives. With the latter, in addition to implementing changes and practices to create a more sustainable campus, NYCU has also enhanced its faculty and students' awareness of the importance of pursuing the SDGs. Accordingly, this year, research teams from NYCU won four Sustainability Action Awards (see Note below) at the 2022 Asia-Pacific Sustainability Action Awards (APSAAs) and Taiwan Sustainability Action Awards (TSAAs) organized by the Taiwan Academy of Corporate Sustainability. This showcases our capabilities and determination to cultivate local communities and care for society through sustainable development actions.

The world is changing rapidly and the higher education environment is facing increasing challenges. Moreover, the early stages of our university merger brought considerable instability and identity issues. Yet, we have now affirmed that with an emphasis on the humanities, healthcare, and technologies, NYCU will commit to fulfilling its social responsibility. At the core of this, NYCU will see people as the foundation of success, build a strong scientific basis for developments, find practical applications for technology, and collaborate with the industry. "Act Together to Reach the Peak and Invent the Future" has become our motto, and with those goals in mind, NYCU will collaborate with its partners in the industry, government, and academia and commit to building a more sustainable future.

Note. With SDG 11 "Sustainable Cities and Communities" as its focus, the Making of Hsinchu Living Museum for Social Inclusion and Common Good won the Gold Award at the TSAAs and the Bronze Award at the APSAAs. With SDG 3 "Good Health and Wellbeing" as its focus, the Tribal Star Incubation Knowledge Construction on the Ground won the Silver Award at the TSAAs and the Bronze Award at the APSAAs.

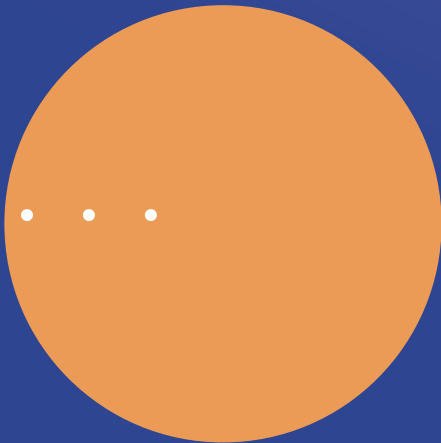
The President Chi-Hung Lin
National Yang Ming Chiao Tung University



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Statistical Profiles of NYCU



Number of undergraduate students

8431



Number of post-graduate students

11981

Number of full-time
faculty members

1,156

Number of full-time staffs

1,026

Number of student organization
related to sustainable development

19



Colleges and Organizations

21 colleges + 1 affiliated hospital

Campuses

8 campuses
located in 5 cities



University floor space

851,616 square meters

Total awarded students
participating in competitions

200+

Number of academic papers
published by students or exhibition
activities organized by students

500+

Number of students who
published academic paper or
organized exhibition activities

450+

Number of students attending
international conference

150+

Number of sister universities

350+

Number of partner universities
running dual/joint degree programs

50+

Number of international
collaborations on academic
research projects

50+

Number of dual/joint
degree programs

200+

Green buildings

11

Number of trees that were planted within 3 years

1,223

LED illumination ratio

80% +

Green procurement ratio

100%

Renewable energy power generation

Reduce 4,356 tons of carbon emissions annually

National-level Research Center

10+

University-level Research Centers

20

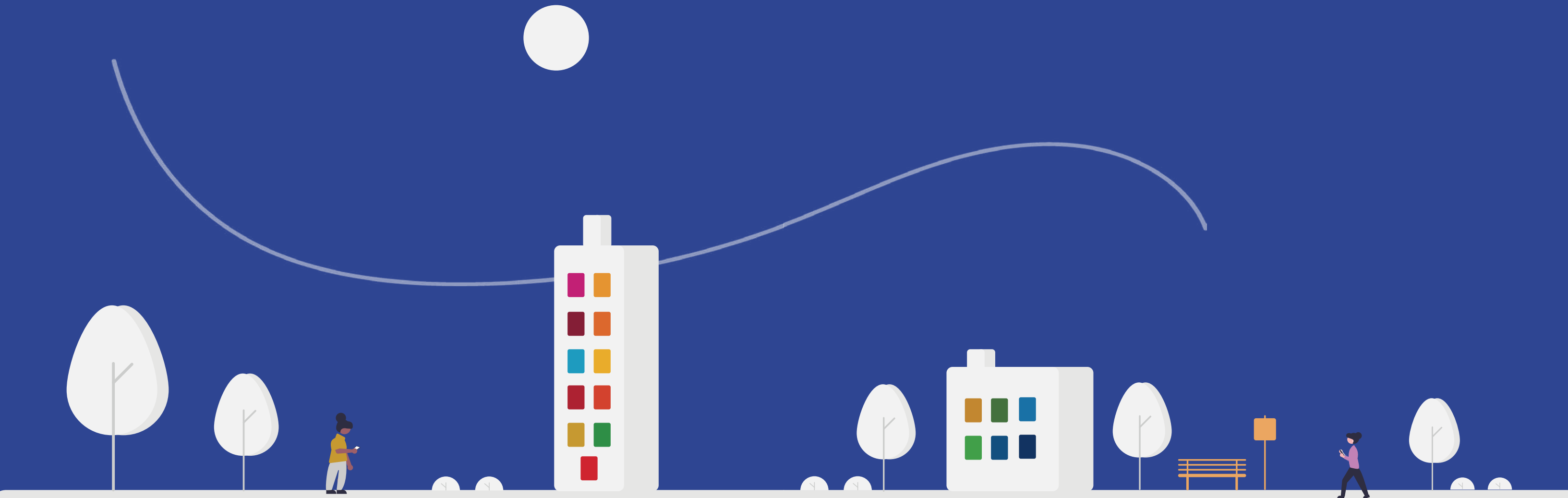
College-level Research Centers

25+

University Strategic Planning and Long-Term Mission

Including 3 main areas of development: Technology, Healthcare, and Humanities

On February 1, 2021, two major elite universities in Taiwan, National Chiao Tung University and National Yang-Ming University officially merged into one, National Yang Ming Chiao Tung University



NO POVERTY

End poverty in all its forms everywhere.

End poverty in all its forms everywhere.

End poverty in all its forms everywhere.

58



Publications in SCOPUS

83



Course units

9.1%



Percentage of all Taiwan publications

1710



Students who chose the course units

Research

National Long-Term Care System 2.0 Research

According to estimates from the National Development Council, Executive Yuan, Taiwan will have a super-aged society (more than 20% of the population over 65) by 2026. Long-term care needs and burdens are expected to rise gradually with the expanding elderly population. The struggle between older family members' care needs and younger family members' income and career development is often the primary challenge faced by families whose elderly members have long-term care needs. To help families in this position, in 2017, Taiwan launched the National Ten-Year Long-Term Care Plan 2.0. Meanwhile, NYCU's Institute of Health and Welfare Policy has long researched and evaluated the healthcare system and provided the government with professional advice on the formulation of care policies and payment systems, including how to invest resources in the areas people need the most, sustainably manage funds for long-term care systems, and balance family members' income and taxation. The institute hopes to continue advising the government and conducting follow-up research, thereby substantially reducing the financial and psychological pressures on families facing long-term care needs.

Research on the Determining Factors of Household Access to Clean Drinking Water

NYCU's Eswatini students of the International Health Program applied what they learned through the program to study the connections between drinking water, health, and family wealth in their home country. Their research showed that although the proportion of households with improved sources of drinking water in the country increased from 73.1% in 2010 to 77.7% in 2014, further analysis of the population breakdown showed that households headed by women or those aged over 34 were unlikely to have access to improved drinking water sources; in addition, households with over three people had lower access to improved drinking water. Urban populations also had higher access to improved drinking water sources compared to rural areas, indicating that an urban-rural gap still exists in the country. Therefore, the researchers suggested that their government should introduce family planning methods in rural areas to enable households to allocate resources to drinking water projects, educate lower-income households on ways to access improved drinking water, and provide relevant funding and equipment.



01 NO POVERTY

Social Impact

Understanding the Medical and Educational Needs of Remote Communities and Outlying Islands in Taiwan

The NYCU College of Medicine and the Ministry of Health and Welfare signed a cooperation agreement in September 2020 to promote government-sponsored physicians' training. In January 2021, the Dean of the School of Medicine led a delegation of three teachers and 20 government-sponsored students of the College of Medicine, who traveled to Kinmen County to learn about the implementation of the "National Health Insurance Project for an Integrated Delivery System in Remote and Mountainous Areas" (IDS). On this trip, it was decided that NYCU would cooperate with Kinmen Hospital to implement the College of Medicine's annual summer "Medical Practice" course. Accordingly, since summer 2021, this has included local courses and on-site training so that students can understand the healthcare needs of residents in the outlying islands.

Helping Rural and Socioeconomically Disadvantaged Schoolchildren

This project supports NYCU students to understand the true meaning of service, pay attention to important matters regarding community service, and help in society where they are needed most, such as at the Hsinchu H Foundation, St. Teresa Children's Center, and rural schools. Putting their skills to good use at these locations, NYCU students spend time with middle-school students and tutor them in English, math, writing, and other key subjects, they make healthy snacks for the residents of the children's center, and they hold charity sales of handmade products, donating the proceeds to disadvantaged groups. These activities are intended to guide NYCU students to see not only the economic hardships of disadvantaged schoolchildren but also their psychological and educational needs, inspiring NYCU students to find ways to offer help and useful support, as well as pass on their knowledge and experience to the younger generations.

Student Cultivation

International Talent Training Program

NYCU is known for training talents in medicine and technology. The International Health Program, founded in 2003, has trained multiple health administration officials who are now stationed in allied nations. One of the objectives of this program is to help developing countries train public health talents. With that same goal, in 2021, NYCU collaborated with the International Cooperation and Development Fund to set up a special national health system class for Taiwan's diplomatic allies and friendly nations through which to export Taiwan's epidemic prevention experience and public health expertise, thereby helping allied nations train government officials with policy planning capabilities and technical expertise. Meanwhile, in the technology sphere, in 2017, NYCU's International College of Semiconductor Technology signed a dual doctoral agreement with the Indian Institutes of Technology to jointly cultivate high-tech talents. In 2020, NYCU also collaborated with the Vietnam National University (VNU) and Hanoi University of Science (HUS), establishing the "International College of Semiconductor Technology Overseas Master's Degree Program at VNU-HUS, Vietnam (NIMPH)," making NYCU the first university in Taiwan to offer an overseas master's program in the semiconductor field.

01 NO POVERTY

Courses Related to Eradicating Poverty

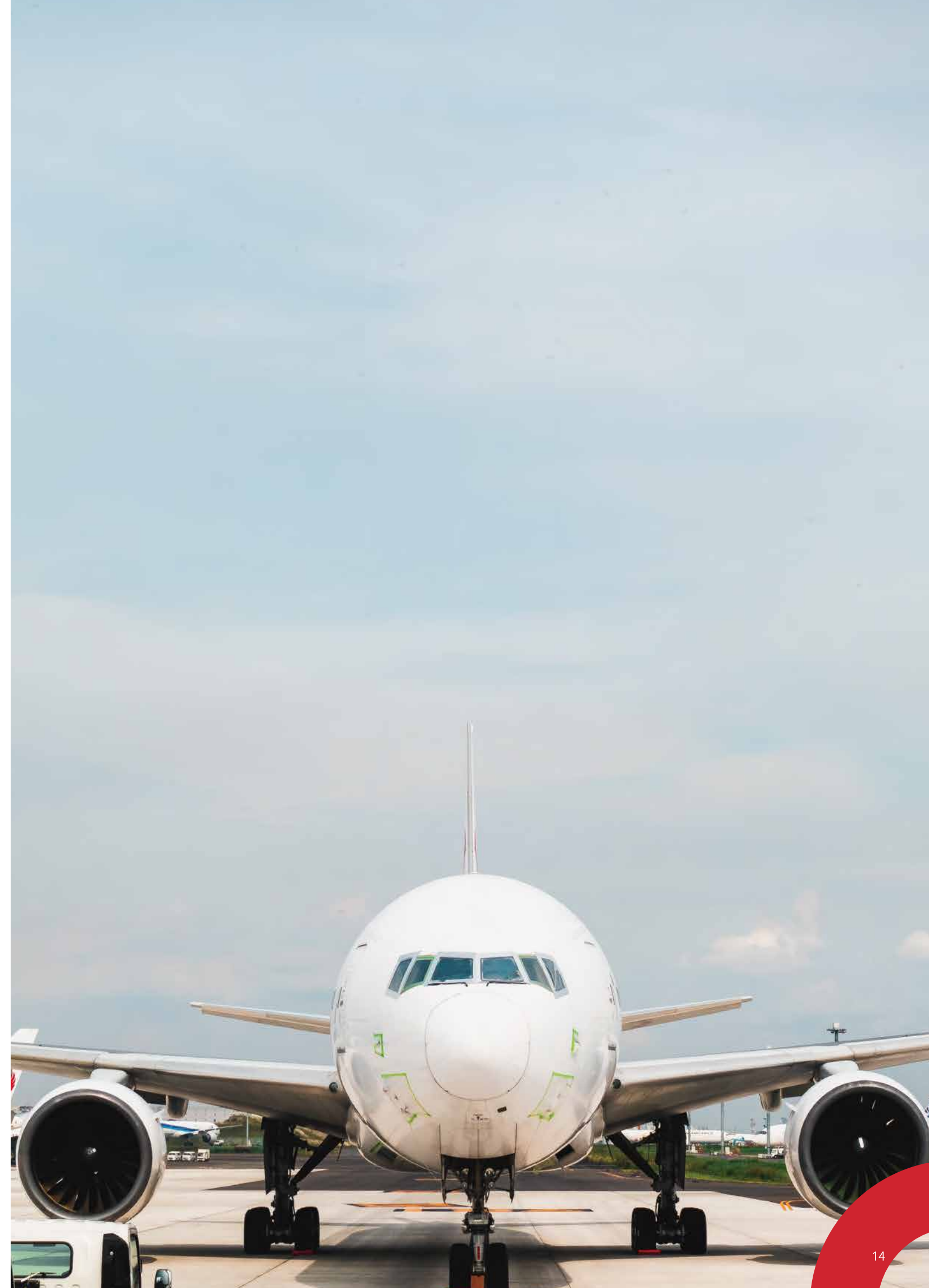
NYCU continues to offer courses such as “Social Welfare,” “Sociology,” “Shoulders of Giants: Social Inequality,” “Global Engineering Leadership Cultivation and Discovery,” and “International Politics and Economy,” which concern social welfare, social mobility, poverty, and inequality faced by different groups in Taiwanese society. The topics covered also extend to aspects such as global politics, the international economy, international trade, and national geographic conditions, which encourage students to think about the causes of poverty and inequality and learn more about the responsibilities of being a global citizen. Over the past year, more than 1700 students took SDG1-related courses.

Care and Subsidies for International Students Returning to Taiwan

NYCU students originate from over 60 countries around the world; however, due to the COVID-19 pandemic, in 2021, international students could not enter Taiwan directly. To help international students continue their studies in Taiwan, NYCU sent personnel to pick up students from the airport and help them check into quarantine hotels. Considering that these students had considerable expenditures for testing and quarantining, NYCU subsidized students’ hotel and travel expenses to help relieve some of the burden; furthermore, NYCU provided supplies to help the students get through their quarantine period.

Implementation of the Safe Learning Plan in Response to the Pandemic

In 2021, to ensure that classes were uninterrupted as the COVID-19 pandemic continued, NYCU accepted resources and funds donated by Hao Yu Technology, Hermes Epitek, AnTiammu BioMed, YTEC, Mr. David Lin, Hukui Biotechnology, and nearly 200 alumni to implement the “Safe Learning Plan.” To limit the burden on students and provide them with convenient testing channels, self-testing booths were introduced on campus to provide free rapid-testing kits for students. A centralized screening station was also set up on move-in day, with medical personnel providing free testing for teachers and students.



ZERO HUNGER

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

64



Publications in SCOPUS

41



Course units

5%



Percentage of all Taiwan publications

894



Students who chose the course units

Research

Unmanned Ground Vehicles and Agriculture

The Russo-Ukrainian War has prompted countries to carefully examine the issue of food self-sufficiency. The average age of Taiwanese farmers is close to 65, which is a major motivation for researching how to reduce manpower and labor in agriculture, fishing, and animal husbandry with the assistance of technology, as well as reduce our dependence on pesticides for the sake of the environment. In a related study, the agricultural self-driving vehicle team, under the supervision of Professor Shean-Jen Chen of NYCU's College of Photonics, applied "smart photonic laser pest-control technology" in orchards, using AI image-recognition technology and lasers to suppress pest populations. This laser technology can be used in tandem with unmanned ground vehicles, which can replace manpower and operate 24 hours a day, reducing both labor and pesticide costs and increasing the agricultural yield. The research team was awarded the Ministry of Science and Tech 2021 Future Technology Award for its innovative work.

3D Modeling Provides Early Warnings of Farming Risks

In response to the challenges in farming caused by climate change, the laboratory of Professor Mang Ou-Yang of NYCU's College of Electrical and Computer Engineering set out to change farmers' methods of watering, fertilizing, harvesting, and other farming practices based on the rule of thumb. To do so, the team created a "lightweight drone swarm" equipped with optical photographic equipment to scan 3D images and frequency spectra of fruit trees' leaves, branches, and flowers. They covered trees of different varieties and in various locations, along with their surrounding areas, thereby compiling a 3D model of fruit tree growth. The data can be used to analyze the growth of fruit trees, fruit maturity, severity of pest and disease damage, to help farmers accurately apply corresponding measures and thus reduce agricultural losses. Furthermore, optical spectrum analysis can assist the farmers to identify the fruit sweetness and moisture at the current time, helping farmers determine when to conduct non-invasive fruit grading or begin their harvest.



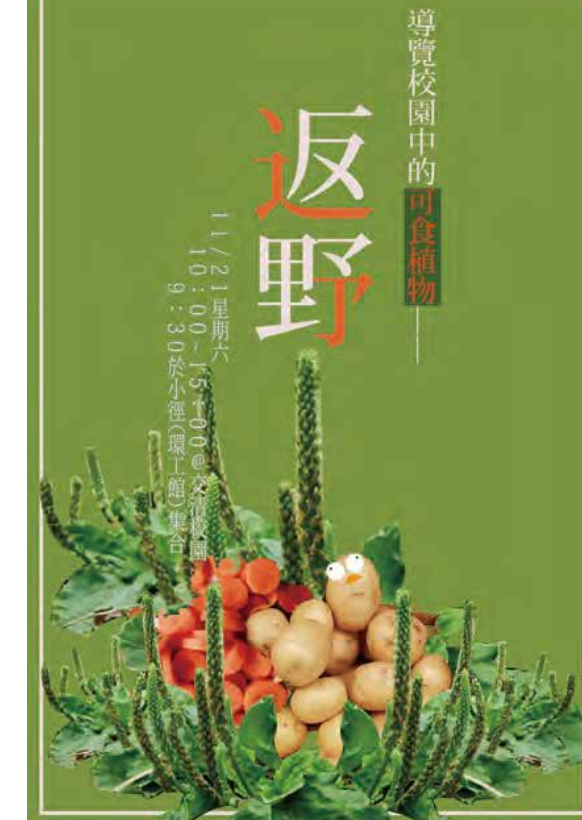
Social Impact

Sixth Fuel Factory - Sustainable Living

The Big Chimney area of Hsinchu's Sixth Fuel Factory was restored and repurposed thanks to the joint efforts of NYCU and the local government. The project aimed to inspire local residents to live sustainably. With that goal, the Sixth Fuel Good-Neighboring Team collaborated with the Permaculture Sustainable Living Team to promote some "good neighborly" spirit through the establishment of the "Sustainable Community Canteen," in hopes of restoring a mutually supportive and resilient lifestyle by creating an environment for people to plant vegetables and fruit trees and raise chickens for eggs. A shared refrigerator was set up and sustainable dishes were developed with the aim of encouraging people's warm human interaction through sharing food.

A Regional Revitalization Salon in a Historic Hakka Building

The historical Zhongxiao Shrine building of NYCU's College of Hakka Studies provided the venue recently for the launch of *Second-Generation Regional Revitalization—New Life of Hakka Villages*, a book written by NYCU students with the guidance of professors. For the launch, many young second-generation farmers (tea, honey, olives, and organic produce), second-generation workers (charcoal factories, horticulture industry), and second-generation businessmen (cafe and restaurant owners) who have returned to their hometowns were invited to discuss how best to face the challenges posed by inheritance and innovation as well as local and international development. Going forward, the College of Hakka Studies will continue to offer a platform where the local youth can access information from the industry, government, and academia, to help them thrive and keep making positive changes.



"Return to the Wild" campus tour poster



Food Management Committee

Student Cultivation

Offering Interdisciplinary Agriculture and Fishery Courses

Through its research projects and the establishment of agriculture and fishery-related courses such as "Anthropology of Agriculture and Aquaculture," "Agriculture and the Economic Environment," and "New Agriculture Innovation Technology and Industry," NYCU guides students to explore the developments and trends of global agriculture and fishery. The aim is to broaden their vision of traditional agriculture and fishery industries, to encourage them to care for farmers and fishermen as well as sustainable agriculture and fisheries, and to inspire the students to dedicate their expertise to the agriculture and fishery industries. They may do so, for instance, through technology, economics, regulations, marketing, activist networks, ethnic development trajectories, food safety, or the global food system.



Stewardship

Providing More Affordable, Healthy, and Diverse Food Options

To provide students and faculty members with an affordable, healthy, and diverse dining environment, NYCU has established a Food Management Committee to manage food-related matters. The restaurants that operate on campus are considerate of students' financial concerns and most of them offer preferential student prices ranging from 10% to 20% below the market price. Diners are surveyed each semester on how they feel about the restaurants, various performance evaluations are carried out, and regular testing is conducted on the food to ensure food safety. In recent years, considering the university's growing number of international students, the contracted restaurants also include some providing Japanese, South Asian, Korean, American, and vegetarian options.

Tour of Edible Plants on Campus

"Foraging" is one of the most primitive ways for humans to obtain food, and it represents a body of knowledge that is still passed down and used in Taiwanese villages today. Students of NYCU's Department of Humanities and Social Sciences organized a "Return to the Wild" campus tour recently, which introduced participants to common edible wild plants and helped them learn how to forage and identify such plants. The event included an introduction to the book *Against the Grain: A Deep History of the Earliest States*, which reflects on the definition of human progress and the choices we make throughout our lives today.

03

GOOD HEALTH
AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages.

Ensure healthy lives and promote well-being for all at all ages.

Ensure healthy lives and promote well-being for all at all ages.

5537

 Publications in SCOPUS

576

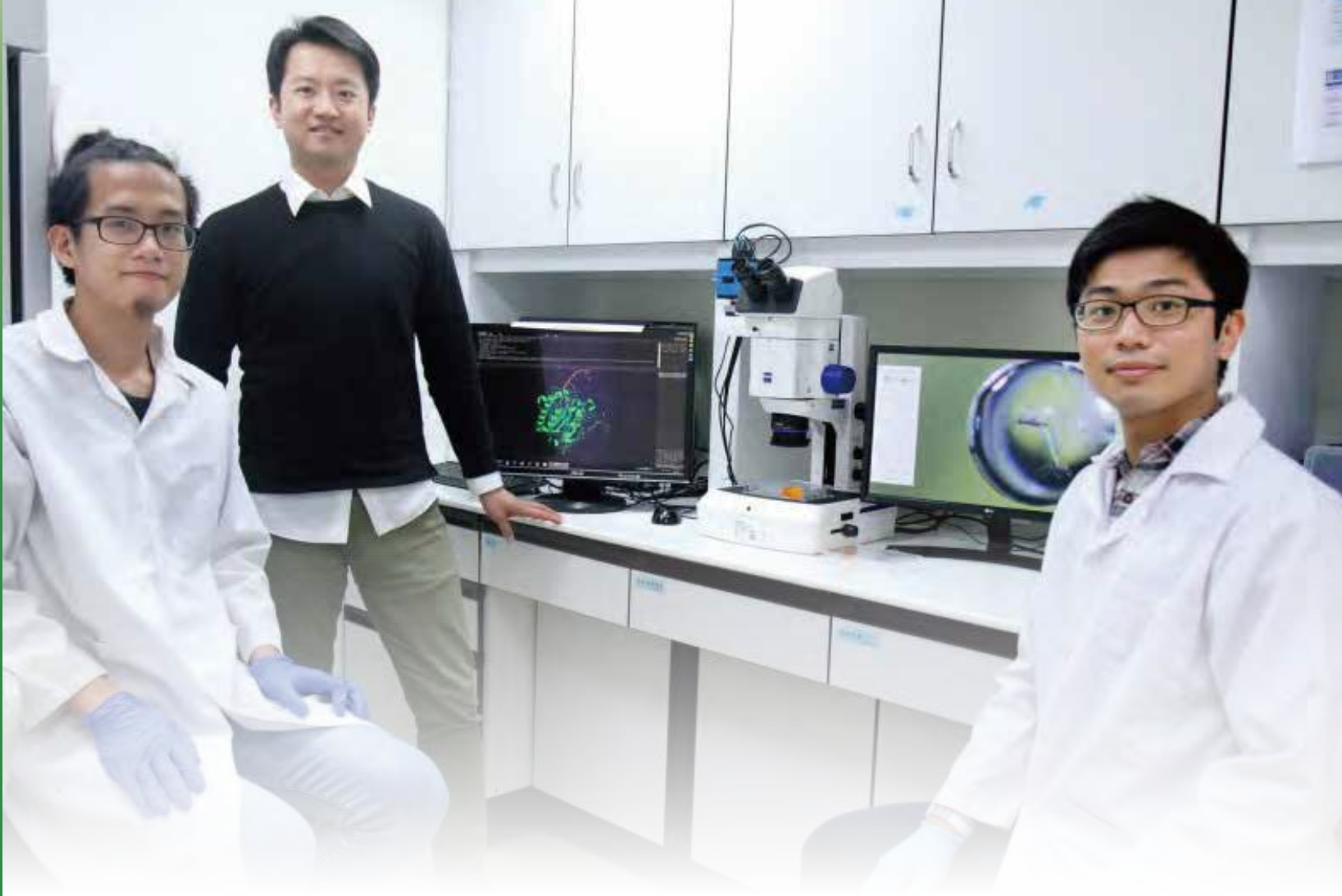
 Course units

16%

 Percentage of all Taiwan publications

12195

 Students who chose the course units



Research

Structural Biology Research Group Helps Address Cancer Drug Resistance

The structural biology research group led by Associate Professor Yu-Yuan Hsiao from the College of Biological Science and Technology, in cooperation with Professor Jhih-Wei Chu, used X-ray protein crystallography to analyze the complex structure of the APE1 protein and DNA. They also sought to learn how the activity of the APE1 protein in the human body is affected by cancer cells, taking on functions such as repairing the DNA of cancer cells damaged by drugs and developing their resistance to DNA-damaging anti-cancer agents. In the future, if structure-based drug design can be used to block the activity of APE1, we may stop certain cancer cells from becoming drug-resistant. These research findings were published in the leading international journal *Nature Communications*, attracting a great deal of attention.

Research

Improving the Elderly's Health and Quality of Life Through "Value-Oriented and Holistic Care"

The research team led by Liang-Kung Chen, Taipei Municipal Gan-Dau Hospital Superintendent and NYCU Professor, worked with medical centers, community clinics, and local clinics and health centers to conduct a one-year randomized control trial study. A total of 398 elderly people with three or more chronic illnesses and an average age of 72.3 years were selected to participate in the study. The study showed that holistic care and diverse life interventions significantly improved the elderly's physical fitness and cognitive functions, in addition to maintaining their quality of life. Moreover, this group of elderly people had significantly better control over their chronic illnesses and decreased instances of inappropriate drug use compared to the control group. These findings were praised by the prestigious medical journal *Lancet Healthy Longevity*, which recommended its international readers to follow this Taiwanese research design in the future to verify the effectiveness of holistic care.

Gene Therapy Brings New Opportunities to Treat Coronary Sclerosis

Coronary sclerosis is a chronic inflammatory disease caused by the buildup of fats in the artery walls, leading to the formation of plaques, which block blood flow. Unfortunately, current treatment methods are limited. A Taiwan-US research collaboration between NYCU, Taipei Veterans General Hospital, and the University of California, San Diego found that "mRNA methylation" may be one of the causes of coronary sclerosis. The research team used gene therapy to inhibit the "methyltransferase" of blood vessels and found that this method could effectively control intravascular inflammation and reduce the occurrence of sclerosis, providing a new opportunity for the prevention and treatment of coronary artery diseases. These important findings have been recognized and published by the journal *Proceedings of the National Academy of Sciences of the United States of America* (PNAS vol. 118).

Social Impact

Integrating Humanities, Health, and Technology to Become Good Community Partners

A research team led by Distinguished Professor Heng-Hsin Tung of the Department of Nursing, Professor Yea-Ru Yang of the Department of Physical Therapy and Assistive Technology, and Professor Wen-Liang Chen of the Department of Bioscience and Technology is implementing an "Elderly Fitness Club" program promoted by the Health Promotion Administration. This program aims to establish community-based centers, bring in professional care for the elderly, and provide immediate care and guidance from sports professionals, in the hopes of delaying aging and the onset of disability as the elderly improve their physical activity. Collaborating with the TSMC Charity Foundation, this program has established community care stations on the Chiaotung and Boai campuses in Hsinchu. It also utilizes neighborhood resources (Guangming Village and Lushui Village of East District, Hsinchu City) to encourage elderly people in the neighborhood to participate. Through diverse professional health services and education offered by the university, it is hoped that the community can be invigorated.



NYCU Students Pray for the Pandemic to End on Diwali

A November 26 Diwali event was organized by the Yangming Campus International Student Association. The organizer and host was Indian student Sakshi Saraswat, who is currently in the Environmental Technology Ph.D. program. Through rituals, candles, and oil lamps, Diwali symbolizes the victory of light over darkness. Through the exchange of different cultures, NYCU students and faculty members, as well as the local community, can learn to respect different ethnic groups and traditions from around the world. Together, participants at the event prayed for Taiwan, India, and the world, along with their hope that the pandemic will end as soon as possible.



Student Cultivation

Cultivating Global Health Leaders

Since it was established in 2003, the NYCU International Health Program has trained a number of health officials and decision-makers around the world. The program, along with the Research Center for Epidemic Prevention Science, were commissioned by the International Cooperation and Development Fund to hold an online training course on the national health system on November 8–9, 2021. In total, 19 supervisors, developers, physicians, and nurses from the Ministry of Health and Welfare and hospitals in Latin American, European, Asian, and African countries attended the course. Through online discussions, participants learned public health concepts, new trends, and practical techniques for handling non-communicable and communicable diseases. The course also introduced global health developments and practices to help the public health officials of Taiwan's allied countries strengthen their domestic health and pandemic prevention systems. During the discussions, participants actively engaged with the suggested strategies to deal with the COVID-19 pandemic, including asking about Taiwan's vaccine and mask policies. Participants also provided positive feedback on the two analysis software systems provided through the course, Jointpoint and SAS OnDemand, noting that they allow them to collect and analyze big data more effectively, which helps tremendously in supporting their government decision-making processes.

Oral Health Service Team: Caring for the Oral Health of Children and Local Residents

It has been over 40 years since the Oral Health Service Team (the Team) was founded in 1979. The team has traveled from the north to the south of Taiwan, from mountainous to seaside regions, and from rural to urban areas to provide its services. The Team is mostly comprised of freshman to junior students from NYCU's Department of Dentistry. It provides free oral health education for the public every year. During summer vacation, the team also visits remote villages to provide free checkups and health education, helping local residents and schoolchildren establish good oral hygiene and maintain their oral health.

Stewardship

Improving Faculty Members and Students' Quality of Life and Physical & Mental Health

The NYCU Libraries have continually organized art and cultural exhibits as well as themed book fairs and film festivals. In 2021, the Libraries provided a venue for 11 exhibitions (2 at the Yangming campus, 9 at the Chiaotung campus). No matter the format, the exhibitions served to make art more accessible to students and faculty members, improving their quality of life. The Libraries also continue to organize various book fairs and film festivals. In 2021, the Libraries of the two main campuses held a total of 19 book fairs (12 at the Yangming campus and 7 at the Chiaotung campus) and 6 film festivals, encouraging visitors to gain knowledge and receive emotional healing through reading. In addition, in 2021, the Libraries screened a total of 72 public presentation edition films simultaneously at the Chiaotung campus and Tainan campus, providing a free leisure area for readers to relax.

Campus Clinic Provides Medical Services for Faculty Members, Students, and the Public

In order to make the medical services more accessible to teachers, students, and communities, the Chiaotung campus established a campus clinic, offering medical consultation since 1974, to provide professional medical services for teachers, students, and the public. Gaining strong medical support from the Yangming campus, the services provided by the campus clinic are diversified after the merger.

QUALITY EDUCATION

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

138



Publications in SCOPUS

1092



Course units

3.7%



Percentage of all Taiwan publications

21801



Students who chose the course units

Research

Rural Healthcare Solution: Government-Sponsored Medical Talent Training System

Taiwan has a system that offers government-sponsored scholarships to medical students to deliver well-trained physicians to regions that lack medical resources and encourage doctors to move into less popular specialties. So far, there have been two government-sponsored medical student cultivation programs. The first originated at the School of Medicine of National Yang Ming University (now NYCU) in 1975, later expanding to other universities, before it ended in 2009. The second program focused on training doctors in specific specialties. It launched in 2016 and is expected to end in 2025. Since the NYCU College of Medicine was originally founded to train government-sponsored doctors, many professors of the School of Medicine, including Yuan-I Chang, Chi-Chang Juan, Jiin-Cherng Yen, Jiing-Feng Lirng, Ling-Yu Yang, and Chen-Huan Chen, jointly wrote an article reviewing the history, current situation, and prospects of the College of Medicine's government-sponsored medical student cultivation programs, hoping to contribute to the reform of Taiwan's medical student sponsorship system. This retrospective article has been published on the Public Medical Talent Training Forum.

Dual-Task Training Using Fitness Games: Maintaining the Elderly's Physical and Mental Health

Aging is associated with a decline in executive function, which may lead to reduced dual-task performance among the elderly. Regular training is the only way to maintain older people's mental and physical health, and training-through-fitness games may have the potential to enhance their exercise adherence. A research team led by Professor Ray-Yau Wang of the Department of Physical Therapy and Assistive Technology devised a dual-task training system based on fitness games. Through its experiment, the team discovered that elderly people who received dual-task training based on fitness games (experimental group) had better executive functions, inhibitory control, cognitive dual-task performance, and community walking ability than elderly people who received home-based multicomponent exercise training (control group). These results suggested that fitness game-based dual-task training improved both executive functioning and dual-task performance in the elderly; furthermore, these positive effects could be transferred to enhance community walking ability. The team's research findings have been published in the *Games for Health Journal*.



Promoting “Theory-Practice Integration” for Veterans

In 2021, NYCU signed an industry-academia collaboration agreement with the Taoyuan City Veterans Service Office to promote “theory-practice integration” for veterans, helping veterans and class-two retired officers improve their competency and professionalism in the hopes of assisting them to further their education or find employment. NYCU Vice President Yung-Fu Chen stated that in line with the university’s social responsibilities and in response to society’s needs, it is valuable to train veterans in emerging fields such as biomedicine, artificial intelligence, robotics, smart medical care, and big data; these are set to not only become the stages for global innovation but also reshape technology as we know it. He also commended the Veterans Affairs Council for its “theory-practice integration” program, among its many other education measures that encourage retired officers to keep up with the times, learn diverse skills, and improve their competitiveness in the job market.

Social Impact

Making Dreams Come True - Rural Indigenous Education

NYCU’s Sanfu Power Club (the Club) has found that, through increasing subsidies and funding from private organizations in recent years, the hardware equipment gap between urban and rural areas has been reduced. Now, the real gap lies in family, manpower, and cultural disparities. The structure of most families in rural areas is not as complete compared to those in urban areas. Most parents must move away to make a living and thus live separately from their children. Teachers are highly important since parents are not around to educate and raise their children. Yet, due to the poor conditions in rural areas, few teachers are willing to stay and teach there for the long term. Additionally, there are cultural differences between children from indigenous tribes and teachers from urban areas, so when teachers use their own experiences as examples, the children sometimes find them difficult to understand. To intervene, in recent years, the Club has focused on expanding the imagination of indigenous children by introducing them to different cultures and broadening their horizons.

Student Cultivation

Bring the World to the Classrooms

Six NYCU international students ran “Bring the World to the Classrooms” activities at Fu Li Junior High School in Xiangshan District, Hsinchu City. They mainly shared the cultures and festival etiquettes of each of their home countries, which they combined with their expertise in sports, science experiments, and webpage design to interact with the students. Through easy-sharing topics, they let the junior high school students try out some of their English, and in doing so, removed much of their fear of speaking with foreigners. Mong-Hwa Chin of the NYCU Office of International Affairs commented that there are few opportunities for junior high school students to learn or practice conversational English vocabulary, nor interact with foreigners. To begin to remedy that, “Bring the World to the Classrooms” supported rural education in action, as well as strengthening the bond between university and community.

04 QUALITY EDUCATION



Student Cultivation

Joining Efforts with the Taoyuan City Government to Build a High School Digital Learning Platform

NYCU has long promoted the concept of open and shared education, and accordingly, it has built the “ewant Open Education Platform” to share high-quality educational resources with the public. In 2021, NYCU also signed an MOU with the Taoyuan City Government to establish the “Taoyuan City High School Digital Learning Platform,” which includes 100 selected courses suitable for high school students. Going forward, the platform will gradually begin to offer digital courses on AI, sustainable development, green agriculture and tourism, Python for basic physics, and hands-on workshops. At the same time, teachers are encouraged to work together to prepare classes and set up online courses so that learning may no longer be confined to the classroom. NYCU President Chi-Hung Lin said, “I believe that, with proper guidance, young children will be able to improve their independent learning ability and adopt the trend of online learning by navigating the cyber world they are so familiar with and explore their interests through a variety of digital courses.” Going forward, NYCU will continue to expand its collaborative partnerships and, echoing the UN’s SDGs, develop more industry-government-academia collaboration, thereby fostering the creation of shared education resources for diverse courses, learning methods, and advancements that will make quality education resources more accessible for all.

Online Talent Training - High School Talent Cultivation Programs

To promote the philosophy of shared education in Taiwan through high school online learning, NYCU added university-level Massive Open Online Courses (MOOCs) to the ewant Open Education Platform, to establish the High School Talent Cultivation Programs in cooperation with the Global Education Innovation Organization. The programs provide high school students with means to expand their skills, improve their literacy, and learn the basics of professional subjects before enrolling at university. There are 19 talent cultivation programs including game design, Chinese medicine, and big data. Courses are offered through the NYCU ewant Open Education Platform, which professors can utilize to interact with students who can take online tests and final exams. Students who complete the courses and pass the evaluations are issued a certificate of completion or study.

Stewardship

It’s Okay to Be Different!

NYCU’s Arete Honors Program started a podcast in 2021 to help students, cultivated under the Master Framework for the 12-Year Basic Education Curriculum Guidelines, explore and learn more about themselves. Through stories of people with different educational backgrounds, the podcast aims to show students there are other ways outside of academia to discover what they love, and that they can still try new things and think about future plans they have been newly inspired to pursue while at university. To prove that, the show invited 10 accomplished guests to subvert people’s impressions of young people. While most people grow through the traditional school system, studying, taking exams, learning to get along with others, and developing one’s own values, there are also those who find themselves by forging a path of their own.



05

GENDER EQUALITY

Achieve gender equality and empower all women and girls.
Achieve gender equality and empower all women and girls.
Achieve gender equality and empower all women and girls.

62



Publications in SCOPUS

59



Course units

8.4%



Percentage of all Taiwan
publications

1278



Students who chose
the course units

Research

Empowering Women and Promoting Women's Sexual and Reproductive Health and Rights

The proportion of women of childbearing age whose demand for family planning is satisfied by modern methods (mDFPS) is one of the indicators set by the United Nations to inspect and ensure maternal and child health. Dr. Christy Pu and Professor Song-Lih Huang of the Institute of Public Health conducted a study on this topic and found that gender inequalities in marital relationships limit the ability of women in Burkina Faso to participate in family decision-making, including the decision on whether to use modern contraceptive methods for family planning. The study also pointed out how important women's empowerment is when it comes to lessening gender inequality and increasing the mDFPS rate, calling on the government to invest in women's education and empowerment and implement relevant policies.

Promoting Equal Sexual Health Rights for All

According to Articles 23 and 25 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD), persons with disabilities have the right to marry, form a family, become parents, develop intimate relationships, and obtain health services. The research team led by Professor Yueh-Ching Chou of the Institute of Health and Welfare Policy proposed the Rights to Sexual Health Programs intervention plan to enhance equal sexual health rights for people with mental disabilities. People with mental disabilities, their parents, and practitioners were invited to take part in the intervention plan. After a few years of evaluations and amendments, the quantitative data showed that the sexual knowledge and quality of life of people with mental disabilities who participated in this intervention plan were improved significantly.

05 GENDER EQUALITY

Social Impact

Advocating for Women's Rights Through Reading

The NYCU Libraries have been working with the Taipei Public Library since 2019 to establish the “Yangming Book Borrowing and Returning Workstation” for the convenience of students, faculty members, and residents of nearby neighborhoods. In 2021, the workstation organized the “Calendar Book Store: Taiwanese Female Writers Book Fair,” which showcased 341 books by female Taiwanese writers. The event was meant to not only introduce readers to more high-quality works but also highlight the achievements of female Taiwanese writers in their creative endeavors and advocate for greater respect for women's rights and voices and the effective implementation of gender equality policies. Through friendly environments and social acceptance, the excellent works of female writers will have more opportunities to shine.



Exploring Women's Reproductive and Body Autonomy Through Art and Medical Humanities

By combining art with technology and the medical profession, an interdisciplinary NYCU research team organized the 2020–2021 exhibition “A Hundred-Year History of Childbirth in Taiwan” and the research symposium “A Hundred-Year History of Childbirth in Taiwan: Gender, Technology, and Social Perspectives.” These illustrated to the public the past 100 years of history regarding childbirth through various historical data, and women's delivery choices and views on physical autonomy were discussed through guided tours and seminars.

Exemplary Women in Modern Science and Technology: Training Female Talents

NYCU cooperated with the Chinese Institute of Engineers, the Society of Taiwan Women in Science and Technology, the Taiwan Photonics Society, and the IEEE Taipei Section to jointly organize the “2021 Women in Science & Technology Convention, Taiwan—Advancing Towards a Bright Future.” A total of 52 societies, associations, and guilds took part in the event. It also had the support of the Ministry of Science and Technology and the TSMC Education & Culture Foundation. Professional women leading in fields of science and technology were invited to share their experiences and wisdom through a series of lectures in the hopes that the image of these role models would become rooted in the minds of the younger generation, thus boosting young women's enthusiasm and confidence in the science and technology fields, which are valuable assets as we work toward achieving gender equality in sciences, technology, engineering, and mathematics (STEM) areas. The event also hoped to encourage the government to invest more resources in establishing gender-friendly academic and work environments.

Student Cultivation

Gender Equity as a Basic Competence

“Gender equity education” is a basic competence that NYCU hopes to instill in students. Accordingly, many courses in the university's general education curriculum discuss the issue of gender equality. Additionally, the NYCU School of Medicine, Department of Humanities and Social Sciences, Institute of Health and Welfare Policy, and School of Law also offer many professional courses that discuss the issue of gender equality from medical, legal, and social perspectives. For example, “Gender and the Law” is a course where students learn about the development of feminist jurisprudence and multicultural thinking, along with which they analyze gender-related legal disputes through actual legal cases in the US and Taiwan. The course cultivates students’ sensitivity to gender issues, implementation of constitutional equality, and diverse thinking.

Gender Equality Seminars

NYCU also promotes gender equality awareness and concepts through a range of gender equality seminars. The Mental Health and Counseling Center works closely with NYCU departments to promote gender equality education through advisor sessions, seminars, lectures, and other activities. In 2021, the Mental Health and Counseling Center and various departments of NYCU worked together to hold 58 lectures on gender equality, with the participation of over 2948 students and faculty members. The lectures helped faculty members and students establish the basis for healthy relationships and go on to manage their relationships with gender equality awareness.

During the pandemic, intimate relationships could be stressful, which is why the Mental Health and Counseling Center held the lecture “Becoming the Ideal Partner in Times of Pandemic—Communication in Close Relationships,” where psychologists introduced students to the four major factors impacting relationships—criticism, contempt, defensiveness, and building walls. In addition, the lecture also taught students how to identify the six emotional states in themselves and in others. Through the understanding they gained of these concepts, students could establish proper communication methods and maintain good close relationships even during difficult times.

Stewardship

Gender Equity Education Committee

In line with the Gender Equity Education Act, NYCU has a Gender Equity Education Committee that promotes gender equity education and establishes an education environment without gender discrimination, to achieve gender equality. The committee also drafts prevention measures for sexual assault and harassment on campus, establishes related mechanisms, and coordinates and integrates relevant resources. Furthermore, the committee investigates and processes cases related to the Gender Equity Education Act and promotes family and social education on gender equality in the community.

Gender-Friendly Facilities

1. Breastfeeding Policy

NYCU follows the breastfeeding policies of the Health Promotion Administration and the Act of Gender Equality in Employment. A total of 11 breastfeeding rooms have been created to provide female students, faculty members, and visitors with safe places for breastfeeding. The Yangming Campus Library was even noted for its room when it received the Taipei Department of Health's Quality Breastfeeding Room Certificate.

2. Maternity and Paternity Leave

In accordance with the Act of Gender Equality in Employment, NYCU provides employees with seven days of prenatal exam leave and 42 days of maternity leave, during which wages are paid in full. Additionally, when an employee's spouse is in labor, NYCU grants them seven days of paternity leave, during which wages are paid in full.

3. Gender-Friendly Restrooms

To create gender-friendly spaces, NYCU planned and designed 30 gender-friendly restrooms (including ongoing plans), breaking the traditional gender boundaries in support of gender equality. The locations of these restrooms can be found on the Gender Equity Education Committee's website.

4. Transgender-Friendly Dormitories

To ensure gender-equal rights for transgender students, taking into consideration their needs for privacy and individual circumstances, NYCU has addressed transgender students' dormitory provision with changes such as allowing single-room applications and building gender-friendly restrooms. NYCU is committed to providing transgender students with a safe living environment and improving NYCU students' acceptance of diversity.

06

CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all.

Ensure availability and sustainable management of water and sanitation for all.

Ensure availability and sustainable management of water and sanitation for all.

125



Publications in SCOPUS

14



Course units

4.9%



Percentage of all Taiwan publications

201



Students who chose the course units

Research

Disaster Prevention and Water Environment Research Center

NYCU's Disaster Prevention and Water Environment Research Center has participated in disaster prevention and relevant planning initiatives run by the central government and city/county governments. The center has developed water conservancy-related international collaborations and implemented research plans in the engineering community, serving as a leader on the issues of water conservancy and disaster prevention and relief. The center has also conducted research on several issues, including reservoir water storage safety, river basin protection, coastal topography, and seawall risk assessment. Furthermore, it has continually implemented national-level plans, including key technology R&D and talent training for national reservoir safety assessment operations, the development of a database for water level warnings in rivers and regions managed by the central government, and the promotion of programs such as the "political plan for flood-prone areas." Furthermore, the center has organized international seminars on water environment resources and relevant issues. In addition, it has utilized its research results to help the managing units of the Shihmen Reservoir, Nanhua Reservoir, and Deji Reservoir establish and maintain a "Sediment Transport Monitoring System," needed to support silt control and sand discharge operations. The center's "Dredging Volume Management System" has been widely used in dredging operations at the Nanhua Reservoir, Zengwen Reservoir, Mudan Reservoir, Wushantou Reservoir, and Sun Moon Lake, making key technical contributions to the sustainability of Taiwan's water resources.

Building Smart Flood Prevention and Resilient Cities

NYCU Assistant Researcher Sheng-Hsueh Yang helped the New Taipei City Government carry out the "Tackling Climate Change Fearlessly—Building Smart Flood Prevention and Resilient Cities" project, integrating IoT and real-time monitoring systems to create a smart flood control platform with functions such as automatic monitoring and rapid system-development integration. These functions allow flood control personnel to quickly obtain water information on their mobile phones and perform follow-up response actions, keeping citizens safe from the threats of climate change. The project received the "Resilience and Innovation Award" in the Ministry of Health and Welfare's "2021 Taiwan Healthy and Age-Friendly City Awards," hailing a new chapter for climate change and water environment monitoring and response.



Social Impact

Paying Attention to Local Water Affairs by Co-Organizing Seminars on Water Development in Taiwan

The “Environmental Technology and Smart System Research Center,” led by NYCU Distinguished Professor Chih-Pin Huang, co-organized the “2021 Water Affairs Symposium.” This year’s symposium focused on the “Smart Water Forum,” “Water Affairs Technology Forum,” and “Water Industry Development Forum,” where government, industry, and academic leaders in the field of water affairs shared their research and practical experience, thereby boosting mutual interaction and cooperation. The symposium also invited Ambassador Eugene Chien, Chairman of the Taiwan Institute for Sustainable Energy (TAISE), to give a speech on the topic “Prospects for Carbon Neutrality in the Water Industry,” with the aim to promote the future development of water affairs in Taiwan. NYCU students received the “Outstanding Emerging Water Affairs Talent Award” given out at the symposium.

Professional Education and Training on Inspections and Safety Evaluations of Water Storage and Water Diversion Structures

For five consecutive years, NYCU has been commissioned by the Water Resources Agency, Ministry of Economic Affairs (MOEA) to organize the “Professional Education and Training on Inspections and Safety Evaluations of Water Storage and Water Diversion Structures.” Reservoir management units and personnel in charge of reservoir safety at engineering consulting companies are the main participants. In 2021, the three-day training was conducted by the Water Resources Agency, NYCU faculty members and researchers, and engineering consultancy companies. Training courses covered a variety of topics such as “reservoir safety evaluation,” “reservoir slope anchor inspection, maintenance, and management,” and “reservoir risk management introduction” to enhance the attendees’ professional knowledge of reservoir management and safety maintenance personnel, all contributing to enhancing the water safety of people in Taiwan.

Student Cultivation

Cultivating Young Talents in the Fields of Hydrology and Water Conservancy

NYCU offers courses such as “Water and Wastewater Treatment,” “Water Recycling Technology,” “Water Resources Planning,” “Environmental Hydrogeology,” and “Advanced Hydrology” as the cornerstones for students looking to develop future careers in hydrology or water conservancy. The master’s and doctoral programs at NYCU’s Department of Civil Engineering have also established the “Water Conservancy and Engineering Group” to cultivate research talents in the field of the water environment.

Helping Government Units Train Wastewater (Sewage) Treatment Personnel

The NYCU Institute of Environmental Engineering and the Environmental Technology and Smart System Research Center handle wastewater (sewage) treatment personnel’s training for the Environmental Protection Agency of the Executive Yuan, as well as establish wastewater (sewage) treatment personnel system. In addition, NYCU helps enterprises cultivate specialized wastewater treatment personnel, improving the professionalism in terms of wastewater treatment as well as pollution prevention and management, so that wastewater (sewage) can be properly treated and managed, thereby protecting Taiwan’s ecology and environment.

Stewardship

Creating a Clean and Hygienic Environment for Water Usage on Campus

NYCU installed over 350 water dispensers that provide cold and hot drinking water across teaching buildings, administrative offices, event centers, sports venues, student dormitories, and staff dormitories. Between its campuses, NYCU has over 200 water towers that can hold a combined total of over 10,000 tons of water. NYCU cleans the water towers each year, and commissions a water quality testing company to test 30 random water dispensers every month for *E. coli* to ensure that students, faculty members, the public, and neighboring residents have convenient access to free and clean drinking water when they are on campus. Public spaces such as activity centers and sports venues also have restrooms with complete drainage facilities, providing clean and safe toilets for students, faculty members, and visitors.

07

AFFORDABLE AND CLEAN ENERGY

Ensure access to affordable, reliable, sustainable and modern energy for all.

Ensure access to affordable, reliable, sustainable and modern energy for all.

Ensure access to affordable, reliable, sustainable and modern energy for all.

1240



Publications in SCOPUS

34



Course units

10.3%



Percentage of all Taiwan publications

8153

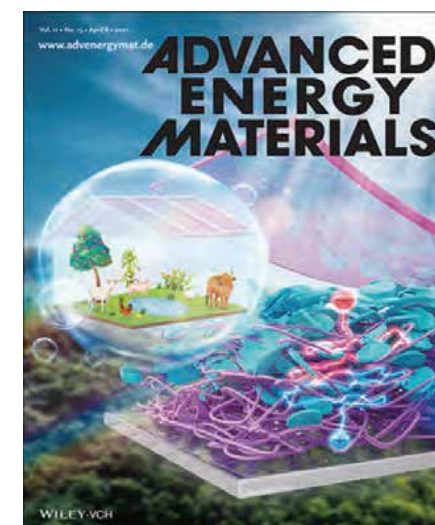


Students who chose the course units

Research

Breakthroughs in Semi-Transparent Organic Photovoltaics' Efficiency

The research team led by Professor Kung-Hwa Wei of the NYCU Department of Materials Science and Engineering has extensive experience in the field of semi-transparent organic photovoltaics research. The team recently applied the novel method of continuous coating to their semi-transparent organic photovoltaics to achieve a p-i-n active layer structure. Thanks to this, when increasing the visible light transmission of a component, its high photoelectric conversion efficiency is maintained. This makes the semi-transparent organic photovoltaics prepared by the team the most efficient organic solar cells in terms of photoelectric conversion. Furthermore, the team's research results have been published in the internationally renowned scientific journal *Advanced Energy Materials*. The research has helped Taiwan achieve world-class standards with respect to semi-transparent organic photovoltaics technology, demonstrating Taiwan's capability to develop this technology independently. Currently, the team is actively conducting research on how to apply this technology in smart greenhouses.



Cover article of the journal

Diagram of the cross-sectional molecular structure of the p-i-n active layer of the semi-transparent organic photovoltaics. The blue disc and purple line represent p-type macromolecules and n-type small molecules, respectively.

Cheng Wang, Pei Cheng, Shaun Tan, Chung-Hao Chen, Bin Chang, Cheng-Si Tsao, Li-Yin Chen, Chung-An Hsieh, Yu-Che Lin, Hao-Wen Cheng, Yang Yang, Kung-Hwa Wei. Sequential Deposition of Donor and Acceptor Provides High-Performance Semitransparent Organic Photovoltaics Having a Pseudo p-i-n Active Layer Structure. *Advanced Energy Materials*, 2021, 11, 2003576. Copyright Wiley-VCH GmbH. Reproduced with permission.

Exploring the Distinct Carrier Transport Properties of Halide Perovskite Heterostructures

Halide perovskites have been extensively applied to solar cells and optoelectronic devices. In particular, aligning 2D/3D perovskite heterostructures is a strategy applied to improve stability and conversion efficiency, but such heterostructures often lack clear interfaces and chemical compositions, which is why there is a lack of systematic research on the photophysical properties of 2D/3D halide perovskite heterostructures. The research team of Professor Yung-Jung Hsu of the Department of Materials Science and Engineering collaborated with the research team of the University of Wisconsin-Madison to successfully align 2D/3D halide perovskite heterostructures, using time-resolved spectrometers to analyze the carrier transport kinetic model of this material. The results were conducive to the development of photoelectric conversion applications. Furthermore, the research results were published in the internationally renowned *Journal of the American Chemistry Society*.

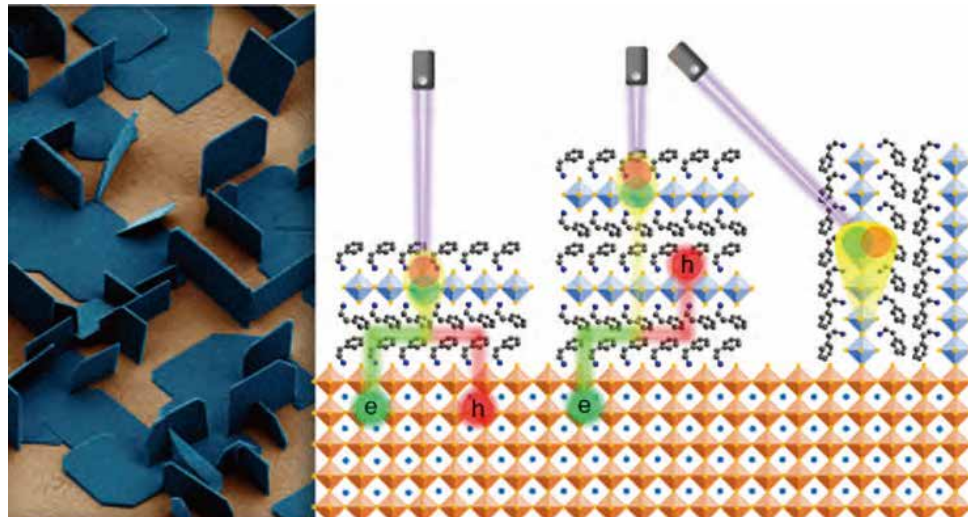


Diagram of the microstructure image and carrier transport kinetic model of 2D/3D perovskite heterostructures.

Ming-Yu Kuo, Natalia Spitha, Matthew P. Hautzinger, Pei-Lun Hsieh, Jing Li, Dongxu Pan, Yuzhou Zhao, Lih-Juann Chen, Michael H. Huang, Song Jin, Yung-Jung Hsu, John C. Wright. Distinct Carrier Transport Properties Across Horizontally vs Vertically Oriented Heterostructures of 2D/3D Perovskites. *Journal of the American Chemical Society*, 2021, 143, 4969. Copyright American Chemical Society. Reproduced with permission.

The Era of Electric Vehicles is Coming - Promoting Sustainable Development with Green Energy

In recent years, the world has become increasingly aware of the importance of conserving energy and reducing carbon emissions. In the face of energy shortages, reducing greenhouse gas emissions has become an important sustainable development strategy for countries around the world. Many countries have proposed green energy policies to ban the sale of traditional fuel vehicles, which are to be replaced with electric vehicles, resulting in a substantial increase in the demand for EV batteries. To ease the rapidly increasing demand for batteries in the market, Professor Wei-Hua Chieng and his research team from the NYCU Department of Mechanical Engineering developed fast-charging batteries for electric vehicles with highly efficient charging/discharging rates, high safety levels, and long cycle lives.

Social Impact

Japan-Taiwan "Tokyo Tech" NYCU Joint Online Workshop

In 2021, the NYCU College of Engineering and Japan's Tokyo Institute of Technology jointly organized the 2021 Japan-Taiwan "Tokyo Tech" NYCU Joint Online Workshop. Representatives from NYCU's College of Engineering, Renewable Energy Technology Development Research Centers in Taiwan, Japan, and South Korea, the Tokyo Institute of Technology, and Taiwan's Ministry of Science and Technology officials in Japan were all invited to take part in the online workshop. Research topics such as green energy technology development and energy optoelectronic materials were discussed in the workshop, and its focus was the use of optoelectronic materials for energy conversion applications to implement renewable energy development. The participants shared their experiences through discussions, invigorating the development of new forms of green energy technology.



Taipower D/S One: The Beauty of Infinity

"Taipower D/S One" is Taiwan's first green energy exhibition center representing Taiwan Power Company's "Green, Smart, and the Future" brand image. The exhibition center is headed by Professor Shu-Chang Kung of NYCU's Graduate Institute of Architecture. Professor Kung was the advisor for NYCU's Orchid House team at the 2014 European Solar Decathlon, where the team won an award. In the two years since its opening, Taipower D/S One has received multiple international awards, including the MUSE Award of the American Alliance of Museums. The first floor of the exhibition center features a "VR six-axis robot," which allows visitors to experience the evolution of sustainable energy from microorganisms to solar, wind, and ocean energy. The second floor includes an energy gym called "Energym," turning solar energy, wind energy, and water power into various interactive fitness facilities. In addition to experiencing different fitness games, visitors can also learn about how different energy sources in Taiwan operate. Taipower D/S One demonstrates the limitlessness of energy, becoming a platform for green energy sustainability.



Student Cultivation

GMBA Student Team Wins First Place at the CTCI Youth Sustainability Innovation Program

NYCU's GMBA student team "VIV TEAM" participated in the first CTCI Youth Sustainability Innovation Program in 2021, winning first place among 82 teams. NYCU's GMBA program has always emphasized education on entrepreneurship and innovation. For its core course of "Startup Business Planning," team members Ya-Ching Chang and Chia-Yun Lu from the College of Management, along with Huan-Ting Huang and Cheng-Kai Ko, cooperated with Hsin-Yi Li from the Department of Mechanical Engineering to propose a "carbon neutral" solution based on wind energy. They integrated the concept of sustainability within their proposal and applied the commercialization skills they learned in class, which led them to win the award.

Energy System Design and Application Course

NYCU offers the course "Energy System Design and Application" to facilitate students' understanding of the characteristics of different energy sources and relevant concepts that affect energy systems. The course starts with the basic concepts of energy, then looks at the characteristics and requirements of energy systems from the perspective of energy balance; subsequently, the course goes into energy demand issues by discussing the three main sources of energy consumption in Taiwan, namely buildings, air conditioning, and lighting. Finally, from a management perspective, the course looks at the development of energy management systems and smart grids through the lens of Taiwan's power structure, discussing how to achieve a better energy usage model with minimal carbon emissions. The course also includes hands-on practice in designing energy systems, to strengthen students' understanding of energy construction concepts, system considerations, and analytical methods.

Stewardship

Educating Elementary School Students About Energy

The Transdisciplinary Design Innovation Shop organized the "Sustainable Building Education Workshop: Green Energy Buddies on a Mission" to teach the concept of renewable energy to students starting from elementary school. Students from Jian Gong Primary School were invited to visit the "TSMC × NCTU Energy Education Center." The center is an upgraded version of the "Orchid House" design that won various awards at the 2014 European Solar Decathlon. The workshop began with a series of questions and answers designed to show kids that protecting the land, human development, energy conservation, and smart living are not mutually exclusive. Then, the children were invited to observe instances of energy consumption in everyday life. They learned about the power consumption levels of lamps, air conditioning, computers, and other home appliances, converting the amounts into electricity fees. The event taught these children that "energy may be used up one day" so that they could understand the importance of energy conservation and how renewable energy and urban energy transformation are not only imperative but also feasible. Finally, they were divided into five groups to discuss creative solar photovoltaic applications, drawing their ideas on posters. The creative ideas they came up with were full of possibilities outside of grownups' imagination, such as a flying car that could bypass rush-hour traffic, a solar-powered time-travel watch, a solar-powered kitty car with a TV installed, a solar-powered house that could attack enemies and defend residents of an alien planet, and an all-purpose flying house that could fly people to, among other locations, their grandma's house.

08

DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

86



Publications in SCOPUS

397



Course units

3.4%



Percentage of all Taiwan publications

8153



Students who chose the course units

Research

Connections Between Academic Institutions and Local Communities:

Regional Revitalization by Recording Youth Entrepreneurship in Hakka Villages

Going from research and in-class learning to regional revitalization, the students and faculty members of the College of Hakka Studies published the book *Second Generation Regional Revitalization: New Life of Hakka Villages*, which features 17 in-depth reports of second-generation entrepreneurship stories. Through in-depth interviews, the book explores how youths returning to their hometowns can take over, transform, and create local industries with the mindset of a new generation and thereby develop new possibilities. The book will be donated to school and public libraries at all levels in Hsinchu County (City).

Promoting Workers' Occupational Health

The use of toxic organic solvents in the factory of the Radio Company of America (RCA) in Taiwan caused the deaths and occupational illnesses of workers. This case of pollution is known as the RCA Incident. After decades of litigation, the court finally ruled in 2018–2019 that the RCA and its parent company must provide compensation to the employees and their families. In 2021, the RCA Employee Care Association used the compensation to establish a public welfare fund. Professor Yi-Pin Lin of NYCU's Institute of Science, Technology, and Society served as a consultant during the RCA trial and focused especially on gender issues in the case, emphasizing how the lifestyle and work of female employees differed from those of male employees, so "gender variables" had to be properly considered in the relevant research regarding the case. For example, female employees might have had to use the water for longer periods of time, and therefore, were more likely to be exposed to the risks. Plus, the reference data on deaths may not have included female employees who have moved with their husbands. This indicates how important it is to properly incorporate gender perspectives into research or when making causal inferences in fields such as health risk assessment, environmental epidemiology, and occupational epidemiology. The RCA incident leaves an indelible scar on Taiwan's labor history. To prevent it from repeating, the government and the public must look more seriously at the relationship between the occupational environment and health, as well as the need for a sound system to protect employees' rights.



Social Impact

Boosting the National Youth Employment Rate Through the Industry “New Elites” Pilot Program

To implement the Industry “New Elites” Pilot Program launched by the Workforce Development Agency of the Ministry of Labor, NYCU introduced several new courses, including “Diversified Semiconductor Industry Talent Cultivation,” “AI Interdisciplinary Data Science Talent Training,” “Optoelectronics and AI Biomedicine Industry Talent Cultivation,” “International Marketing and Business English,” “FinTech,” “AI,” and “Industry 4.0.” These courses have boosted youth employment to over 70%. Between June 2021 and June 2022, a total of 12 courses were provided in the Industry “New Elites” Pilot Program, benefiting 546 people. The training courses include both theory and practice to develop students’ employment skills, which is in line with the government’s economic development policies; in addition, the courses help young people optimize their resumes. NYCU also organizes job fairs for companies to introduce themselves and match students to positions, giving young people interview opportunities and increasing the employment rate of trainees.

Strengthening Social Justice

The “Research Center for Financial Regulation and Corporate Governance” of NYCU’s School of Law is committed to promoting human rights and justice-related campaigns. The center’s director, Professor Chih-Chieh Lin, was among those who drafted the “Public Interest Whistleblower Protection Act.” Professor Lin helped draft the bill from scratch so that Taiwan could have more comprehensive laws protecting whistleblowers’ identity, personal safety, and job security. The center also organized a series of seminars on labor rights, thereby raising labor rights awareness, promoting labor rights protection, and working with the NYCU International Institute for Cultural Studies to focus on the labor rights of migrant workers and provide suggestions for relevant policies and regulations.

Student Cultivation

Promoting Courses for Friendly Workplaces and Gender Equality

NYCU teaches students about workplace safety and labor rights policies through a series of professional courses and lectures. For example, as part of the courses “Organizational Behavior” and “Human Resource Management,” Assistant Professor Po-Yi Li invited Researcher Nai-Chia Chen from the UK Westminster Foundation for Democracy to give a lecture on “The Practice of Gender Diversity Friendliness in the Workplace.” Chen talked about the definition of gender-friendliness, the workplace experience of workers in Taiwan, and the relevant practices of domestic and foreign companies. The course also invited students to think about possible gender-friendly policies from the perspective of corporations. In their feedback on the lecture, many students mentioned that they would be more empathetic and tolerant in the future, not only respecting colleagues with diverse gender identities but also being an ally and contributing more to gender equality. NYCU also invited Dr. I-Tien Tang from the Taipei Veterans General Hospital to talk about workplace safety and health promotion and how to prevent illnesses induced by a heavy workload. The NYCU School of Law organizes seminars and lectures regularly to give students channels through which to learn the role of human rights protection in the workplace and in supporting economic development.

Graduate Employability

NYCU graduates possess outstanding competence and skills, making them prime candidates for positions with corporations across all fields. According to *Cheers Magazine*’s “Enterprises Favorite University Student Survey,” NYCU graduates ranked among the top three in “professional knowledge and technology skills,” “innovation,” “problem-solving,” and “digital applications” in 2020–2021. In addition, according to Global Views Monthly’s big data report on “universities with the highest starting salary for graduates,” graduates from NYCU who graduated in 2021 from IT-related fields had an average starting salary of NT\$40,000, sharing the top spot with three other elite universities in Taiwan. The starting salary of graduates from IT-related fields increased to NT\$41,000 in 2022, ranking the highest in Taiwan.

Student Cultivation

Career Training to Recruit High-Level Talents

To help overseas Chinese students and international students find employment in Taiwan after graduating, NYCU invited professional lecturers to conduct nine job search workshops covering many topics, including business Chinese, mock interviews, online resume writing, and English presentations. The series of job search workshops also included an “all-English mock interview workshop” to help overseas Chinese students and international students elevate their competitiveness; during this workshop, interview techniques and knowledge of Taiwanese tech industries were shared. On the day of the event, 10 overseas Chinese/international students engaged in one-to-one mock interviews and career consultations with lecturers.

NYCU also collaborated with the Ministry of Economic Affairs to organize the “2021 Career Talk and Employment Meetings” event for overseas Chinese students and international students. The event listed more than 100 job vacancies provided by four companies: ASML, Asoke Computer, Wistron, and Dimerco Express Corporation. These companies provided on-site interview opportunities. NYCU continues to help its outstanding students with the recruitment process and takes measures to retain international talents. In addition to actively strengthening the link between students and domestic industries, NYCU also invests a lot of resources in enhancing the competitiveness of students and organizing talent matchmaking events. Such actions not only help meet the need for high-level talent in domestic industries but also contribute to international economic development after international graduates return to work in their home countries.

Domestic and Foreign Professional Internship Programs

In response to the need for global talent cultivation, and given the opportunities there are for our graduates to participate in overseas corporate operations, NYCU has launched internship programs through sustainable cooperation initiatives with enterprises. Since 2018, NYCU has worked with the industry-leading companies Delta Electronics Inc. and the Education Division of the Taipei Representative Office in the EU and Belgium to offer students professional internship programs at the Delta Electronics EMEA (Europe, Middle East, and Africa) Headquarters in Hoofddorp, The Netherlands. In addition, NYCU also cooperates with semiconductor equipment industry leader ASML to run an internship program offering students overseas internships at the ASML headquarters, located at the High-Tech Campus Eindhoven—the Silicon Valley of Europe. NYCU’s industry-university cooperation will help cultivate talents in the global semiconductor industry, as well as enhance students’ professional knowledge, English communication skills, and international mobility.



Stewardship

Workplace Dignity and Policies

NYCU handles faculty and staff remuneration and its evaluation standards in an open and transparent manner, and it follows the regulations governing employee recruitment, selection, appointment, remuneration, evaluation, and promotion stipulated in the Ministry of Labor’s Act of Gender Equality in Employment. NYCU does not discriminate against employees based on gender, sexual orientation, age, race, religious beliefs, or any other factors. Recently, to maintain a harmonious workplace and ensure the occupational safety and labor rights of all employees, NYCU issued the “Prohibition of Workplace Violence” written notice. NYCU will not tolerate any form of workplace bullying or discrimination between supervisors and employees.

Comprehensive Occupational Health and Safety Management Systems

NYCU conducted a campus environment and safety management system review in 2020 and 2021 to get a grasp of its campus environment and safety management status. Items for inspection included “environmental protection and energy resource management,” “occupational health and safety management,” and “campus disaster management.” NYCU not only passed the expert review but also gained a recognition of excellence from the Ministry of Education for its excellent environmental protection and disaster prevention practices. After the Chiaotung campus received the ISO 45001:2018 international certification in December 2020, the Yangming campus was also certified by the British Standards Institution in November 2021.

Furthermore, NYCU has invested resources in building a digital environmental health and safety management system so that matters including personnel and site management, education training, procurement of regulated materials, waste management, and emergency response resources can be handled under the ISO 45001 occupational health and safety framework to improve the safety of our campus environments. Going forward, NYCU will establish an even more comprehensive occupational health and safety management system to enrich students’ and faculty members’ labor rights knowledge, literacy, and awareness, thus ensuring their ability to work, learn, and study in a safe environment, as well as providing safe, convenient, and friendly occupational health and safety services.

INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

370



Publications in SCOPUS

351



Course units

6.2%



Percentage of all Taiwan publications

8749



Students who chose the course units



Research

Building a Sustainable Future through Technology

With a solid foundation in biomedicine and electronics, NYCU has made developments in emerging research fields such as biomedicine, AIoT, robotics, smart medicine, electronics and optoelectronics, and big data, focusing on interdisciplinary research and development (R&D) to create a sustainable future. In 2021, NYCU research teams made many breakthroughs that attracted widespread attention and praise. A total of 18 teams won the Ministry of Science and Technology's "Future Tech Awards," accounting for nearly one-fifth of the total number of awards. Among these, three teams won the "Award for Excellent Contributions in Technology Transfer" and two alliances received the "Excellent Industry-Academia Alliance" recognition. In addition, a number of NYCU research teams won the "National Innovation Award," the highest honor for innovation and R&D in Taiwan's biotechnology field, demonstrating NYCU's R&D capacity in biomedicine and health.

Social Impact

Raising Intellectual Property Rights Awareness

Every year, NYCU's Center for Industry–Academia Collaboration runs a series of intellectual property courses for NYCU faculty members and students, as well as the public, to raise awareness about intellectual property rights. In 2021, four courses on intellectual property rights were held, with lecturers that had ample practical experience in the industry. The courses were: “From Invention Disclosure to Writing Patent Applications,” “Campus Intellectual Property Protection from the Perspective of the Ministry of Education Campus Intellectual Property Protection Action Plan,” “Notes on Industry–Academia Collaboration and Technology Transfer Contracts,” and “Patent Analysis and Search.” A total of 203 people participated in the four courses. Through in-depth yet straightforward explanations of the concepts of intellectual property rights, these courses strengthened and improved participants’ understanding of intellectual property rights protecting their research and development results.

Industry-Government-Academia Cooperation: Addressing Labor Shortages and Disasters

The Changhua County Government signed an MOU with NYCU, Quanta Computer, and Chunghwa Telecom to promote industry–government–academia cooperation on smart agriculture. Furthermore, the “Smart Agriculture Promotion Center” was officially established. Smart agriculture can help solve problems such as the aging population in rural areas and the lack of agricultural labor. Technological features that can monitor conditions and prevent disasters in real-time make smart agriculture and aquaculture extremely beneficial.

Improving Children’s Information Literacy

NYCU's Service-Learning Center matched students from the Department of Electronics and Electrical Engineering with volunteers from TSMC's 12B wafer production plant, who together organized a one-day technology experience camp in a joint effort to promote tech innovation education. Students and teachers from Nanliao Elementary School were invited to visit NYCU to play a coding-themed board game. Through the board game “Coding Ocean,” student volunteers from the Department of Electronics and Electrical Engineering taught the students basic coding concepts. Thanks to the game, learning how to code was not at all a boring experience. Participants were also taken on a tour of TSMC's Museum of Innovation guided by TSMC volunteers, where they learned about the application of integrated circuits in daily life and the infinite possibilities for how TSMC innovations can continuously drive technological progress.

Student Cultivation

International Hackathon: Promoting Healthcare and Digital Transformation

With “healthcare” and “digital transformation” as the main themes, NYCU organized its first international hackathon competition, inviting companies such as LINE and HTC Deep Q to participate. Teams of students from seven universities in Taiwan participated in the competition, using tools provided by corporate partners to develop their ideas. The winning teams received not only prize money but also internship opportunities. In total, there were 21 teams with 102 students from 14 countries. The winning team, after 40 hours of online competition, was Team Finic, which comprised five Indonesian students from NYCU and National Central University.

Team Finic designed a LINE healthcare service with functions such as searching for nearby hospitals, tracking medical records, online medical consultation, and the Panic Button. The latter integrates cell phones’ location tracking feature to quickly search for nearby LINE users who can offer immediate help, overcoming the issue of language barriers, which can delay requests for help when calling 119, as well as highlighting Taiwanese people's eagerness to help others. This was the first time NYCU held a hackathon for both Taiwanese and international students. The entire competition was held in English, and participants used a chatbot provided by LINE, as well as open data, to develop ideas. NYCU hopes that through similar activities in the future, students will be encouraged to address social needs with creativity and create applications that can contribute to society.





Student Cultivation

Interdisciplinary Applications and Cultivating Entrepreneurship

NYCU has set up programs and courses to cultivate students' entrepreneurial and innovative abilities for their future careers. Students are encouraged to participate in competitions to build up entrepreneurial capabilities and solve real-world problems in creative ways. For example, since 2014, the NYCU School of Biomedical Science and Engineering has implemented the Ministry of Education's "Innovative Entrepreneurial Talent Cultivation Program," offering nine introductory and advanced interdisciplinary courses. So far, the program has trained over 100 multidisciplinary young talents and the staff of dozens of start-up biomedical companies. Over the years, the program has received five gold awards, three silver awards, two bronze awards, eight popularity awards, two awards for the most potential, one award for team excellence, and six honorable mentions—totaling 27 awards—as well as ranking first in Taiwan. Moreover, in 2021, the NYCU College of Biomedical Science and Engineering's "Savvy," "Ok Burn," and "Exo-W BIOTECH" training teams were handed four awards at the Ministry of Education's "National Innovation and Entrepreneurship Competition," including one gold prize, two honorable mentions, and one popularity award.

NYCU values the cultivation of interdisciplinary BioICT talents, encouraging students to form interdisciplinary teams for international competitions to foster knowledge exchanges with students from top universities around the world. The NCTU_Formosa team participated in the 2021 iGEM Competition of Synthetic Biology hosted by MIT. With "periodontal disease prevention and dental restorative E. coli" as its research topic, the team won the gold medal, standing out among over 300 teams from universities around the world. Meanwhile, the team NYCU-Taipei delved into the use of nattokinase to prevent vascular embolisms under the title "NATTO_IT_OUT," which won the team its 11th gold medal.

NYCU also shines in terms of its research and development in the semiconductor field. NYCU's faculty members and students participated in the 21st Golden Silicon Awards—Semiconductor Design and Application Competition in 2021. Among 255 teams from 33 colleges and universities, NYCU won two gold prizes in design, one bronze prize, the Best Creativity Award, and one gold prize in application. Award-winning designs included the following:

1. The team led by Associate Professor Yen-Cheng Kuan of the International College of Semiconductor Technology and Professor Chih-Wei Liu of the Institute of Electronics trained vehicles to accurately calculate their distances from other vehicles and obstacles, thus greatly improving the safety of future autonomous driving.
2. The team led by Professor Sheng-Di Lin and Associate Professor Chia-Ming Tsai of the Institute of Electronics utilized the "near-infrared" zone of automotive LiDAR systems to build a light transmitter and photon-receiving element. Then, the team used computers to calculate the distance between vehicles and external objects through the time difference of the traveling light beams. This solved the problem of insufficient light sources and interference from adjacent car radars caused by the use of cameras in the collision avoidance systems of self-driving vehicles, thereby improving the safety of such vehicles.
3. Furthermore, the team led by Professor Ke-Horng Chen of the Department of Electronics and Electrical Engineering used the third-generation semiconductor material gallium nitride (GaN) to improve the efficiency of an existing charging resistor chip.



Stewardship

IAPS Reinforces the Industry's Capabilities

The Center of Industry Accelerator and Patent Strategy (IAPS) at NYCU has actively cultivated new business ventures since it was established in 2013. So far, the center has cultivated more than 750 new startups and research teams. Each year, science and tech research teams supported by the IAPS have raised more than NT\$300 million; furthermore, the center was awarded the Innovation Incubation Award at the 2021 National Innovation Awards. Of particular note, the IAPS helped social enterprise Blueseeds establish a sustainable investment mechanism and promote the application of agricultural blockchains. In 2021, Blueseeds won the "Best for the World 2021" award from the international organization B Lab, demonstrating its commitment to promoting responsible production and consumption cycles through new business models.

10

REDUCED INEQUALITIES

*Reduce inequality within and among countries.
Reduce inequality within and among countries.
Reduce inequality within and among countries.*



206

Publications in SCOPUS



53

Course units

10.5%



Percentage of all Taiwan publications



1100

Students who chose the course units

Research

AIoT Talent Training Program: Establishing Science and Technology Education

Since 2019, the NYCU Chiaotung campus has organized relevant resources and worked with tech companies to establish the AIoT Talent Training Program. With the assistance of local schools, this program has trained the first batch of information education teachers specialized in the science and tech field. To do so, the program collaborated with the TSMC Charity Foundation, enabling it to introduce semiconductor AIoT sensor teaching aids and incorporate core processing and sensing elements into the courses. The program has trained 29 seed teachers in four schools and is expected to benefit 20 elementary schools in Hsinchu County. In addition to training teachers, the program also trains disadvantaged students at NYCU on the basics of AI/IoT/coding so they can work as teaching assistants in related high school classes, as well as obtain funding scholarships to help with their living expenses. The program also co-hosted the National AIoT Sensor Award with Taoyuan City and Hsinchu County to encourage teachers and students to make use of technological tools and foster teamwork and collaboration skills.



Resource from : <https://udn.com/news/story/7324/5953181>



Never Stop Learning - Learning Disability Outreach

The education sector pays a lot of attention to learning disabilities. To effectively identify children with learning disabilities in remote areas, then carry out subsequent clinical assessments and offer appropriate remedial education, the research team led by Professor You-Yin Chen of the Department of Biomedical Engineering proposed the Never Stop Learning program, as part of which they established an AI platform to screen for learning disabilities. The program was designed mainly to address the lack of support resources for children with learning disabilities in remote areas. AI-assisted misspelling recognition software was developed for mobile devices to help evaluate students' writing skills, which eliminates the cost and difficulty of sending medical and educational personnel to remote villages. With funds provided by the MediaTek Foundation, the program organized the online event "Behind the Mistakes: Misspelling Pattern Recognition Workshop" on October 3, 2021 for language therapists and special needs teachers. The workshop aimed to improve participants' understanding of children with learning disabilities and provide participants with the skills needed to independently operate the misspelling recognition mobile software in educational or medical settings. This AI learning disability screening platform won the Excellence Award and Popularity Award at MediaTek's 2021 "Genius for Home" digital social innovation competition.

Social Impact

Supporting a Social Welfare Organization Amidst the Pandemic

During the Mid-Autumn Festival in 2021, the National Yang Ming Chiao Tung University Hospital sought to express its gratitude to the healthcare professionals who worked so hard during the pandemic and also help a social welfare organization that was affected by the pandemic. To do so, it reached out to the Lan-Shin Women and Children Service Center, which faced challenges during the difficult time of the pandemic, and ordered mooncakes from the center for the hospital staff to enjoy.

Protecting Access to Knowledge for the Visually Impaired - Upgrades to the Audiobook Service

NYCU Libraries' audio magazine service aims to protect the reading rights of those who are visually impaired and eliminate information gaps. In February 2021, the "NYCU Library Love Blind Audio Magazine" service added *One Little Day* and *Health World* to its existing publications in the libraries' catalog. The catalog includes *Common Wealth Magazine*, *Crown Magazine*, *Evergreen*, *National Geographic Magazine*, *Scientific American*, and *Performing Arts Redefined*. In addition to the audio magazines, the libraries now also provide audio versions of outstanding articles from seven other periodicals, which are recorded by volunteers.



10 REDUCED INEQUALITIES

Student Cultivation

Helping People with Technology and Promoting Science and Programming Education

NYCU partnered with Taiwan's tech industry leader—TSMC—to organize science education camps. The Service-Learning Center of NYCU matched students from the Department of Electronics and Electrical Engineering with TSMC partners, who worked together on tech education for elementary school teachers and students. Furthermore, based on years of experience with service learning, students from NYCU's Department of Electrophysics and Department of Applied Chemistry also developed "Fun with Chemistry!" teaching plans, which have been implemented in elementary schools in Hsinchu. Through its service-learning mechanism, NYCU actively encourages students and faculty members to address social issues by applying their professional knowledge, which can contribute to providing quality education in the community and working together to achieve education equality.

Learning by Serving Others

NYCU's Center for Teacher Education has implemented the Ministry of Education's "Schweitzer Program" since 2013, encouraging teachers and students to follow the example of educator Albert Schweitzer, who cared greatly for the disadvantaged and made exceptional efforts to enhance their prospects. Every year, during summer vacation, NYCU teachers and students put the educational knowledge and theories they have learned into practice. They attend Baoshan Junior High School, where they provide on-site academic, moral, life, and career support to disadvantaged students (including indigenous students, students from low-income families, and students with foreign parents). This project gives future teachers an opportunity to interact with and support students, and it broadens the horizons of students from remote villages, thereby helping to close the education gap.

Stewardship

Student Aid Programs: Providing Support to Students

In supporting economically disadvantaged students, the Student Assistance Division of NYCU follows all relevant laws and regulations and offers the maximum financial assistance. More than that though, its support also incorporates humanistic care and companionship. By reaching out to such students and seeking to understand their difficulties in studies and life, NYCU can go further to provide assistance and timely referrals to other services. NYCU also provides information regarding scholarships and the subsidies available for national exam registration fees, and it offers incentives for students to participate in activities to explore their career opportunities. In addition, NYCU organizes events for overseas Chinese students such as Chinese New Year activities, making sure that they feel welcomed, accepted, and like they are at home.

Financial Assistance Mechanisms

To encourage low-income and disadvantaged students to stay in school, NYCU has set up a scholarship section on its website, helping students find resources such as student loans, emergency financial aid, or information on work-study opportunities and scholarships. The website includes a page for scholarships that compiles information on over 300 on-campus and external scholarships and financial aid opportunities, so that students who need these can apply as soon as possible. NYCU has a dedicated unit that promotes university social responsibility. The unit has set up the "Financial Aid for Economically Disadvantaged Students," "Jade Admissions," and "SDGs Social Responsibility Program." In particular, the "Financial Aid for Economically Disadvantaged Students" provides approximately NT\$10 million each year to help disadvantaged students with academic assistance and career exploration. It is hoped that the tailored support mechanism will help disadvantaged students take on diverse learning and innovative research. NYCU also offers a variety of part-time research work opportunities, encouraging students to work on research in their specialized fields or assist in school administrative affairs during their time at NYCU. The statistics show that more than 5000 students have so far participated in work-study programs, while over 10,000 students have worked as part-time assistants on a monthly salary.



Establishing an Indigenous Students Resource Center

In line with Article 25 of the Education Act for Indigenous Peoples, NYCU officially established the Indigenous Students Resource Center in 2020. The center provides indigenous students with academic, life, and cultural support and also organizes many events, including the “Paiwan and Rukai Traditional Cinavu Cooking Workshop” and “Indigenous Music Class—Paiwan Edition.” These events allow all students to learn about and come to appreciate different cultures, as well as join in with them, fostering a friendly campus environment for all students.

Stewardship

Individualized Services at the Mental Health and Counseling Center Help Students with Disabilities Adjust to Campus Life

In 2021, NYCU had 95 students with special educational needs. The university provided personalized support services for each student, including life, academic, career, and psychological counseling services. These are aimed at helping students adapt to campus life, successfully complete their studies, and reach their full potential. The Yangming campus was built on a hillside. To make it more convenient for those with disabilities to navigate around and find accessible facilities, the special education classroom implemented the “campus accessibility analysis and search function plan,” combining resources from the administrative offices, academic offices, and the ICF Assistive Technology Center. Based on this, it successfully launched the “Friendly Campus: Accessibility Search Function,” which helps those with disabilities search for and utilize accessible facilities more easily. Meanwhile, at the Chiaotung campus, the Graduate Institute of Architecture and the Ministry of Education’s Department of Student Affairs and Special Education teamed up to develop the University Campus Accessmap Taiwan (UCAT) for those with disabilities: <https://ucat.moe.edu.tw/>

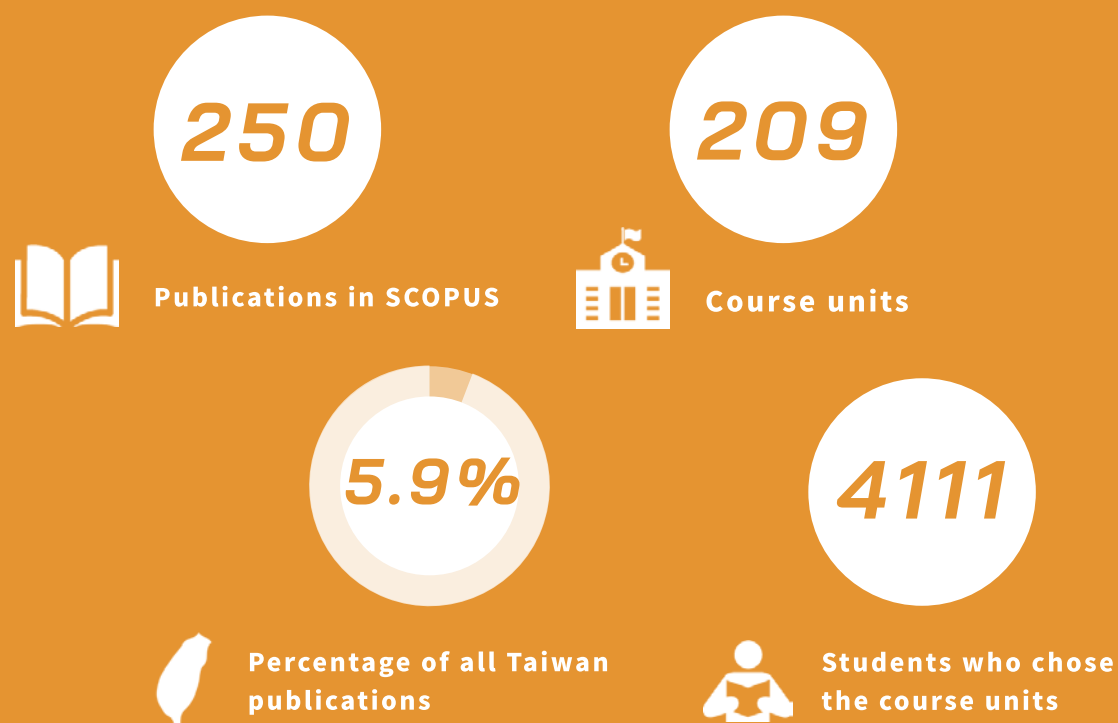


- **University Campus Accessmap Taiwan:** <https://ucat.moe.edu.tw/>

11

SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient and sustainable.
Make cities and human settlements inclusive, safe, resilient and sustainable.
Make cities and human settlements inclusive, safe, resilient and sustainable.



Research

Intelligent Sensor: I+NOSE Accurately Measures the Concentration of Toxic Gases in the Environment

Air pollution is currently a topic of concern for many people. In areas with severe air pollution, indicators are set up to remind people to take relevant protective measures. However, most air sensors currently on the market are imprecise, bulky, and have slow responses. To resolve these issues, Professor Jeng-Tzong Sheu of NYCU's Department of Electronics and Electrical Engineering established a Taiwanese smart sensor team to independently develop an ultra-low-power-consumption silicon nanobelt gas-sensing array chip (I+NOSE), along with gas-sensing systems for smart homes, environmental testing, and smart health-care. I+NOSE can control the Joule heating temperature of individual silicon nanobelts to optimize each element's response to different gases. It can also simultaneously sense multiple gases while maintaining its miniature size and providing features such as a fast response, good specificity, and high sensitivity. Through AI machine learning, the I+NOSE system can accurately measure the concentration of toxic gases in a home or open environment, or even the air that humans exhale. I+NOSE has the advantage of ultra-low power consumption, making it easy to integrate with smartphones and portable devices. Users can monitor the ambient air quality or the air they exhale through smartphones and portable devices anytime, anywhere.

Hsinchu Sixth Fuel Factory: A Museum of Integration and Common Good

The "Sixth Fuel Big Chimney Factory," which was part of the Japanese navy's sixth fuel factory in Hsinchu, is commonly referred to as the "Sixth Fuel Factory" or "the Big Chimney." A team led by Associate Professor Wen-Shu Lai of NYCU's Institute of Applied Arts began restoring the historic site as part of the "Hsinchu Living Museum" project. The team has become the site's guardian, developer, and collaborative partner, and the courtyard of the Sixth Fuel Factory has been transformed into a forum for locals. The project aimed to preserve the history, cultural space, and ecology of the surrounding area. Through humanistic reflection, smart technology, art practice, sustainable design, and ecological conservation, the team managed to preserve its connections to war, status as a habitat for the protected frosted bat, and the cultural characteristics of Taiwanese military villages. The team organized markets, international interactive theaters, and life education events, working with the government and NGOs to bring individuals and different ethnic groups together. In 2021, Professor Lai started a course, "Hsinchu Sixth Fuel Factory: Local Studies," which stimulated relevant discussions. Five open-air cinema screenings and symposiums were also held, at which academics, experts, and the public were invited to discuss ecological conservation issues.



Photo Credit :李易暹

Social Impact

The “Digital Habitat” Light Display at the 2021 Hsinchu Light-Coming Festival

The 2021 Taiwan Lantern Festival transitioned into the 2021 Hsinchu Light-Coming Festival, where the “Digital Habitat” light display area included works by up-and-coming Taiwanese artists. To pick out just one, the piece “Rolling Forest” in Central Park was designed by Assistant Professor Ling-Li Tseng of NYCU's Graduate Institute of Architecture. Her creative work was well-received and will remain in Central Park as a piece of public art. Inspired by the whimsical and natural shape of reeds along the Lon-En Canal, she designed an elegant yet seemingly random forest of curvy trees. Visitors can enter the piece to be surrounded by the copper-like curved trees, experiencing the magical beauty of light, the reflection of which by the curved metal changes as people come and go, creating a magical effect that offers an immersive experience.



Seden Society Puppet Theater Foundation's Puppetry Artifact Collection

In 2020, the NYCU Libraries received a donation of over 2000 puppet theater-related objects from the Seden Society Puppet Theater Foundation. NYCU has gradually completed the restoration of these artifacts and established the NYCU Puppetry Digital Museum to protect Taiwan's cultural assets relating to puppetry. In 2021, NYCU partnered with Tshu-Bi Co., Ltd. (Bank of Culture) to begin the pre-production of a book and documentary on the Seden Society Puppet Theater Foundation. Interviews and clips were produced of 11 people related to the foundation, including Jin-Tze Chen, Hong-Hsi Li, Lai-Fu Li, and Te-Hsi Hsieh, among other puppet artists.

Voluntarily Relinquishing Campus Space So Residents Can Enjoy

To improve the safety of Hsinchu City's Jiangong 1st Rd., Jianxin Rd., and other roads taken by students of Jiangong Elementary School on their way to school, NYCU voluntarily relinquished some campus space to give Hsinchu residents wider sidewalks and more room to wait for red lights, doing its part to keep the city safe. This is the second time that NYCU has worked with Hsinchu City to open up the campus, giving more spacious roads to local residents.

11 SUSTAINABLE CITIES AND COMMUNITIES

Student Cultivation

DIY Circular Farm Made from Recycled Bottles

The research team led by Professor Jehng-Jung Kao of NYCU's Institute of Environmental Engineering successfully developed the world's first prototype DIY circular farm (DIYGreen) made with recycled bottles. It has many environmental protection features and other benefits, making it a great teaching material for environmental sustainability education. The team designed a standardized pot or frame with a base of recycled bottles, which captures rainwater and reuses it for plant growth. The water travels to the soil layer through capillary action in water-diverting strips so that the plants do not need frequent watering. Furthermore, vegetables can be harvested in about 20–35 days, depending on the season. The recycled bottles allow water to be reused for the plants, and any kitchen waste can be directly tossed into the recycling earthworm breeding box developed by the team to become organic vermicompost.

Professor Kao invites teachers at all school levels to use DIYGreen for teaching or other related activities. Without any need for land, students can set up easy-to-maintain circular farms, which they can create on a flat concrete surface (nearby their apartment, in a corridor, on a balcony, or on the roof). They can plant vegetables, fruits, or flowers. The process is ecofriendly and yields fruits and vegetables that are safe to eat. The team even launched standardized pots in 2021, which people can take home and maintain to easily experience the fun of eco-friendly gardening.



Stewardship

College of Hakka Studies Allows Locals to Deposit 22 Ancient Documents and Artifacts for Free

The College of Hakka Studies has been committed to the preservation of Hakka cultural relics for many years. The International Center for Hakka Studies was established under the College of Hakka Studies, becoming the world's first database of books, documents, and cultural relics regarding Hakka culture. In 2021, the NYCU College of Hakka Studies collaborated with local residents for the first time, agreeing to house 22 ancient documents and artifacts at no cost. These were offered up by local representatives and descendants of Liu Cheng-Hao, an important figure in the history of the development of Qionglin Township in Hsinchu County. The 22 documents and artifacts include: the first settlement records for the middle reaches of Toucian River, a gong used by officials, the cane hat of an Atayal tribe leader obtained by a settler after a battle, and a wrist ring from the matchlock guns used by indigenous people. The oldest artifact dates back 236 years. This cooperation represents a major milestone in establishing a database of Hakka culture. NYCU plans to fully digitize the documents and artifacts to preserve them in perpetuity and allow interested researchers to access digital resources conveniently.

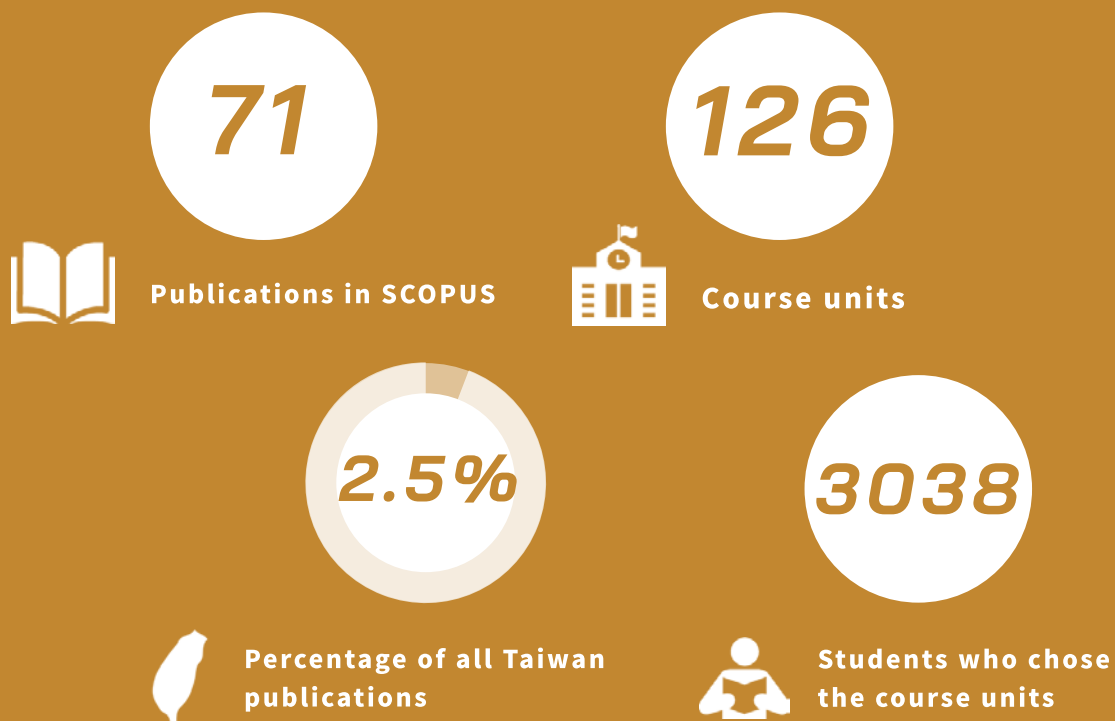
A Safe and Affordable Campus Transportation System

NYCU is committed to providing various safe and sustainable transportation services for teachers, students, and the public. NYCU has long provided shuttle buses for teachers and students, but with the redevelopment of the campus, there was a drastic rise in the demand for on-campus transportation. Therefore, NYCU signed up for the Ministry of Transportation and Communications' "Bus Stops on Campus" program, introducing bus route 559 to the campus. Since February 2021, the shuttle service has been expanded in response to the merging of the two universities, providing students and faculty members with free transportation between the Yangming and Chiaotung campuses. Approximately 600 people take this shuttle bus each week. Since 2017, several YouBike stations have also been set up. The YouBike service is now used over 10,000 times per month and has received widespread praise from students and faculty members. The Chiaotung campus has gone even further and introduced an e-scooter-sharing system, which has been running since 2020.

12

RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns.
Ensure sustainable consumption and production patterns.
Ensure sustainable consumption and production patterns.



Research

Smart Clothing Applications and Realistic Virtual Try-on Features

The team led by NYCU's Professor Chain-Shu Hsu and Professor Jiun-Tai Chen has developed fibers with self-repairing properties through the interaction of polymers and ionic liquids. Once made into a material, it can maintain its structure for a long time and repair itself repeatedly. The manufacturing process is simple, the cost is low, and it can be integrated into existing industrial textile technology and applied to advanced smart wearable devices. In addition, the virtual try-on technology developed by the team led by Professor Wen-Huang Cheng of the NYCU Institute of Electronics represents an emerging technology based on developments in artificial intelligence and deep learning. The technology gained particular relevance during the COVID-19 pandemic, when shopping habits shifted to contactless e-commerce. This technology aims to bridge the gap between online and offline clothes shopping, allowing consumers to get what they want more conveniently, reducing the rate of returns, and lowering the carbon footprint. It is predicted to revolutionize people's shopping experience in the future.

Center for Intelligent Photonics in Agricultural Robotics (CiPAR)

The NYCU Center for Intelligent Photonics in Agricultural Robotics was established based on years of research and development achievements regarding smart optoelectronic components, imaging systems, and laser systems. In response to issues such as severe climate change, population aging, labor shortages, and overuse of pesticides faced by the agriculture industry worldwide, the center creates prototypes for economical field robots suitable for different farmlands and farming needs. In a shining example of industry-academia collaboration, innovative prototypes created by the center are sent to a start-up department, team, or company through spin-ins or spin-offs, so that companies can start mass-producing the prototypes immediately. In this way, field robots can be quickly implemented, thus creating value for agriculture. One team, led by Professor Shean-Jen Chen, developed an orchard robot with a laser pest controller that can work for 24 hours a day. By applying smart optoelectronics and unmanned ground vehicle technology to develop how we can conduct electric, smart, and unmanned agriculture, the team created a win-win for both agriculture and smart technology.



Social Impact

Global Public Welfare Forum

To take on social responsibilities, the NYCU College of Management and the Lee and Li Foundation organized the Global Public Welfare Forum. The forum is completely free of charge, which encourages interested individuals and organizations to participate. Through such dialog in society, we can prepare ourselves to face the major issues brought about by globalization and technological advances. The 2021 forum topics included “Technology Application and Supply Chain Development,” “Corporate Social Responsibility and the Circular Economy,” and “Urban and Rural Sustainability and Environmental Education,” among others. Participants at the forum discussed emerging technology applications and environmental issues in corporate supply chains, as well as the transition from traditional agriculture and how to achieve a positive cycle of sustainable development.

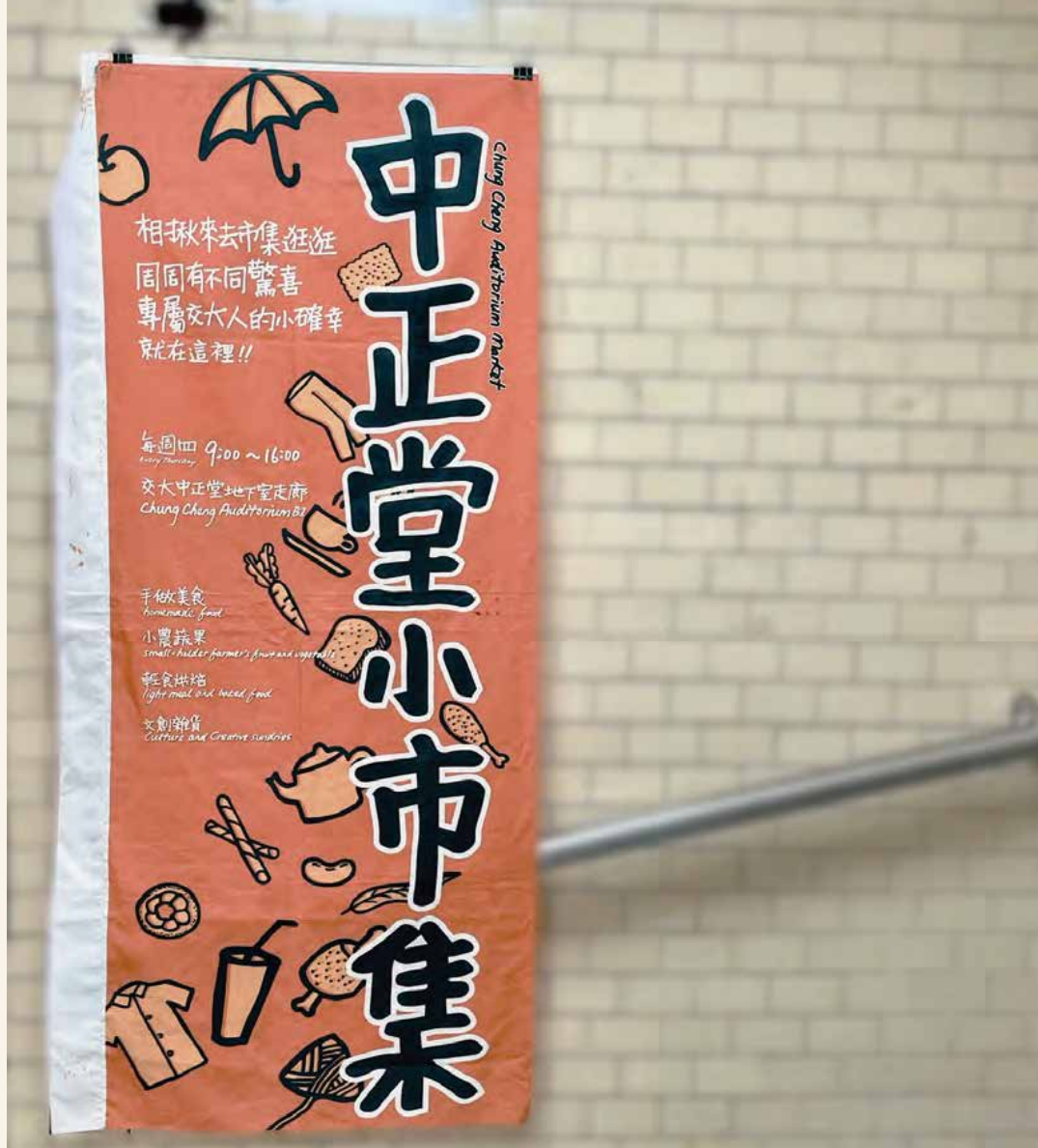


Student Cultivation

Environmentally Friendly Events

NYCU student clubs organize various activities on a non-regular basis. For example, the YMCE organizes charity flea markets to encourage the exchange of second-hand goods. The Eco Designer Club, meanwhile, organizes courses on resource recycling and classification during its regular meeting times to promote campus environmental protection and environmental friendliness. Elsewhere, the “Organic Agriculture and Harmonious Development of Protection, Life, and Ecology” lecture organized by the Institute of Communication Studies discussed the current situation, challenges, and outlook with regard to organic farming in Taiwan. The lecture discussed the importance of strengthening the functionality of organic farming now that Taiwan has developed mature policies and regulations and highlighted our need for organic farming from the perspectives of ecology, life, and production. In addition, in view of the large number of people who sign up for beach cleanups as part of NYCU's service-learning course, NYCU invited the Society of Wilderness to hold a "Beach Cleaning and Marine Waste" service-learning lecture so that students could be better prepared. The lecture improved students’ knowledge regarding beach cleanups and the marine environment. Carrying out a meaningful beach cleaning and marine waste monitoring event should not only involve picking up the waste but also sorting and analyzing it. By doing so, we can provide useful marine waste composition data the government can use to formulate relevant policies and solutions.





Stewardship

Abandoned Bicycles, Second-Hand Equipment Recycling, and Green Consumption

To effectively manage bicycle parking on campus and avoid a buildup of unused bicycles, NYCU has been recycling abandoned bicycles for years. Bicycles deemed abandoned are towed to a clearing for students, teachers, and staff to claim before they are cleared away. This ensures the rational use of resources and avoids unnecessary accumulation of waste on campus.

Meanwhile, to help new faculty members set up laboratories and utilize lab resources, NYCU's College of Life Sciences launched a donation event for research and office equipment, encouraging faculty members to provide a list of their infrequently used equipment that may be better utilized in another lab, to encourage the use of second-hand resources and save both money and space.

Plus, at the weekly market held at Zhongzheng Hall, the university co-op store and the Student Council work together to feature seasonal ingredients and agricultural products, sourced from local independent farmers and vendors, to achieve green consumption.

Circular Knowledge - Extending the Value of Books

The NYCU Libraries have long accepted donations of new or second-hand books and periodicals from organizations or the public, giving out duplicate books or magazines to readers who would like them. For that reason, staff put out books from time to time in the periodicals section on the third floor and the learning space on the second floor of NYCU's Chiaotung Campus Library for readers to take home. During the annual library week event, the librarians also select books in good condition from donated books to give away. The 2021 Library Week held an event titled "Book Adoption—Our Circular Economy, Our Shared Knowledge," which was warmly welcomed by visitors. A total of 882 books and periodicals were given out during the event, extending their circular value and reducing waste and recycling loads. This allowed readers who cannot purchase books due to the financial burden or other reasons to start their own book collection, supporting their right to access and obtain knowledge.



13

CLIMATE ACTION

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



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.

13 CLIMATE ACTION

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.

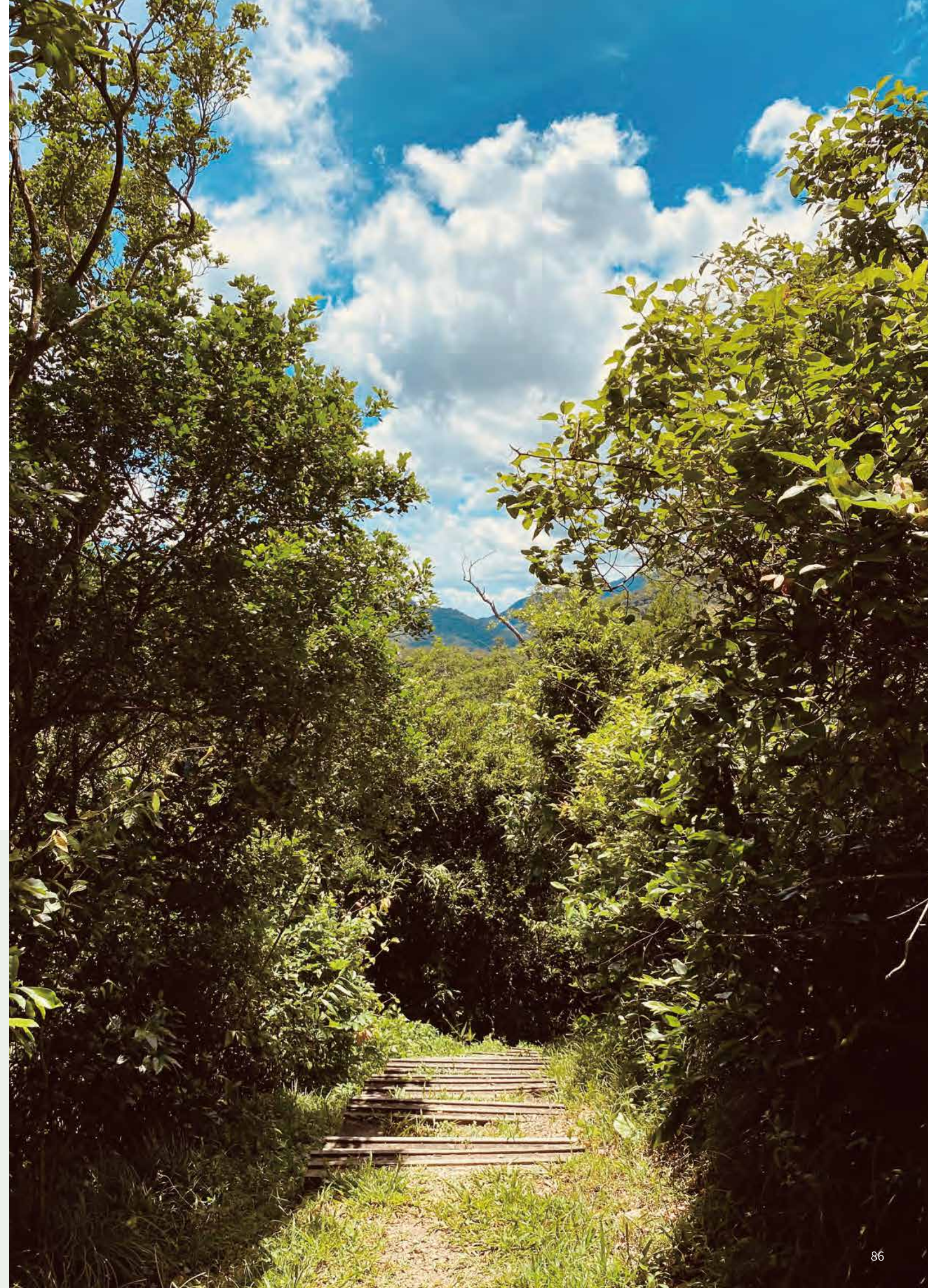
1. January 2021, NYCU received the Taipei City Government Department of Environmental Protection Indoor Air Quality Certification.
2. September 2021, NYCU received the EPA Indoor Air Quality Certification.



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.



14

LIFE BELOW WATER

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
Conserve and sustainably use the oceans, seas and marine resources for sustainable development.



64

Publications in SCOPUS



24

Course units

3.8%



Percentage of all Taiwan publications



394

Students who chose the course units

Research

Using Satellite-Based Radars to Investigate Land Subsidence in Chiayi County

Chiayi County is located in the largest alluvial plain in Taiwan, with aquaculture sustained by water extracted from groundwater. The research team led by Chair Professor Chein-way Hwang of NYCU's Department of Civil Engineering used satellite-based radar measurement data to monitor land subsidence in Taiwan and found that the subsidence rate in the coastal area of Chiayi was 4.5 cm per year. Subsidence in Chiayi's coastal area has led to sea level rises at rates up to 15 times larger than the global rate. Subsidence also leads to water salination, which can destroy the ecosystem, affecting aquaculture and land use. Professor Hwang's research team has provided important geographic information for sustainable aquaculture and land management. Furthermore, its research findings have been published in the international journal *Remote Sensing*.

Reference: Hung, W. C., Hwang, C., Chen, Y. A., Zhang, L., Chen, K. H., Wei, S. H., ... & Lin, S. H. (2017). Land subsidence in Chiayi, Taiwan, from compaction well, leveling and alos/palsar: Aquaculture-induced relative sea level rise. *Remote Sensing*, 10(1), 40.

Using Machine Learning to Identify the Scope of Marine Oil Pollution

In recent years, there has been a rise in the number of marine pollution cases caused by oil spills; however, the scope of pollution can be hard to identify due to the similar color of the pollution and the ocean. Overcoming that challenge, Professor Jun-Wei Hsieh and his research partners in NYCU's College of Artificial Intelligence and Green Energy and the Pervasive Artificial Intelligence Research Labs used deep learning to conduct image segmentation and identify polluted areas. Such information, along with data gathered by drones, can detect the scope and direction of marine oil pollution and help conserve marine ecology. These research findings were published in the *International Computer Symposium*.

Reference: Wu, C. H., Hsieh, J. W., Wang, C. Y., & Ho, C. H. (2020, December). Marine pollution detection based on deep learning and optical flow. In 2020 International Computer Symposium (ICS) (pp. 376-381). IEEE.

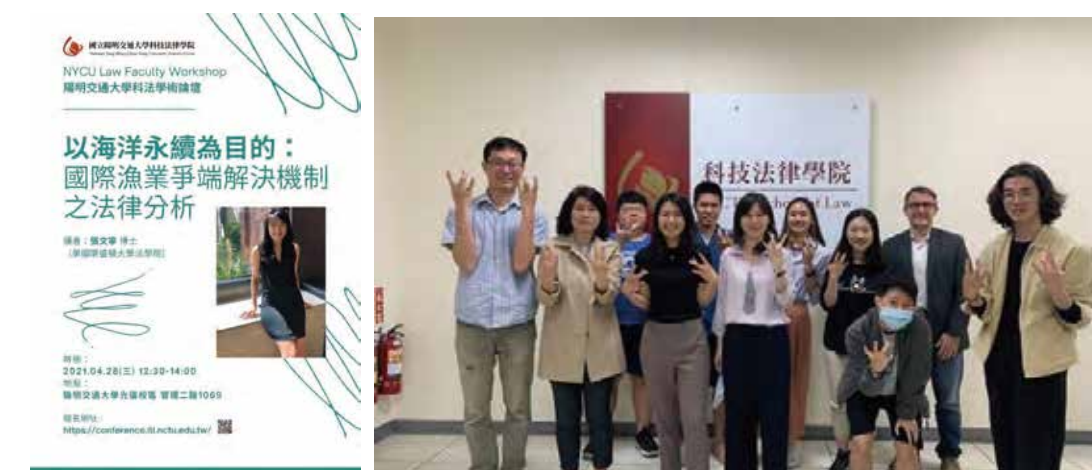
Social Impact

Discussing Ocean Sustainability at the NYCU Law Faculty Workshop

The NYCU School of Law organized the “NYCU Law Faculty Workshop” in April 2021. Dr. Wen-Ning Chang from the University of Washington School of Law was invited to give a lecture titled “Achieving Sustainable Marine Fisheries: A Legal Analysis of the Settlement of International Fishing Disputes.” The lecture revolved around the “United Nations Convention on the Law of the Sea,” laying out Taiwan’s fishing rights in various ocean areas and discussing mechanisms for settling fishery disputes, while taking into account how the vision for marine resource conservation and sustainable development will affect the long-term development of the fishing industry in Taiwan.

Co-Organizing the Ministry of the Interior’s Reference Measurement Workshop - Promoting Marine Education

For years, NYCU’s Disaster Prevention and Water Environment Research Center has co-organized the Ministry of the Interior’s Reference Measurement Workshop. In 2021, Professor Tian-Yuan Shih, Professor Tee-Ann Teo, the Central Weather Bureau, and the National Museum of Marine Science and Technology conducted full-day lectures, tours, and career exploration activities at the National Museum of Marine Science and Technology for students from vocational high schools across Taiwan, giving them a better understanding of reference measurements, geodesy, and tidal observation, as well as their application and impact on daily life.



Student Cultivation

Marine Talent-Cultivation Courses

Over the past five years, NYCU has offered a variety of courses related to marine education, such as: “Coastal Processes,” “Marine Renewable Energy,” “Marine Surveying,” and “Navigation Meteorology.” The courses not only give students a preliminary understanding of coastal and marine environments but also allow them to see the current situation of marine resources and encourage them to pursue a career in marine resources or marine conservation after graduating.

Organizing Seminars on Marine Issues to Raise Awareness

As Taiwan is surrounded by the ocean, all Taiwanese people should be equipped with knowledge of marine environments and their conservation. To that end, NYCU has organized multiple seminars to raise awareness among faculty members and students regarding the conservation of marine environments. For example, the Department of Civil Engineering holds regular seminars focusing on relevant topics such as “Sustainable Development in Ports and the Water Environment,” “Research on Meteorological Tsunamis Through Atmospheric-Ocean-Geophysical Data,” and “Development of Marine Renewable Energy in Taiwan.” Furthermore, the Service-Learning Center recently invited Azure Alliance founder Cheer Chen to talk about how to protect marine ecosystems, promote environmental issues, and advocate for social sustainability. She proposed the concept of “cleaning the ocean with knowledge” and talked about the process of developing a floating garbage collector for ports to help solve environmental issues.

Voluntary Beach Cleanups to Protect Marine Ecosystems

The NYCU ChongDe Young Volunteers student club organizes many environmental conservation activities such as mountain and beach cleanups each year. In 2021, the club organized four beach cleanups in March, May, October, and December at Taoyuan’s Yongan Fishing Harbor, Green Tunnel, and Guanxin Algal Reef. Determined to protect the special marine life in the local area, student volunteers chose to clean the areas with the special “algal reef” ecology. Algal reefs are plant-based reefs that are adaptable to changes in the water quality and temperature but grow slowly. The reefs have carbon fixation capabilities, which can help reduce carbon dioxide levels in the atmosphere. Therefore, the cleaning efforts of student volunteers will significantly contribute toward the sustainable development of the local marine ecosystem.

14 LIFE BELOW WATER



崇德青年志工社

觀新藻礁淨灘

藻礁是我們海洋生物的家
讓我們一起捍衛這個家!

藻礁保護! 一起守護!

活動時間: 5/1 (六) 07:50-13:00
活動地點: 觀音藻礁沿岸
費用: 150元



Stewardship

Plastic Reduction Policies

Starting from July 2019, in line with the government's plastic reduction policy, NYCU banned the use of single-use straws and plastic bags on campus, reduced the use of single-use utensils, implemented waste sorting, and made use of recycled PET bottles. NYCU also urges food providers on campus, such as the Student Cafeteria, to prioritize policies such as banning single-use plastic utensils and straws, to raise teachers' and students' awareness of the need to reduce plastic. To encourage teachers and students to bring their own utensils, NYCU also offers discounts for those who bring their own food containers. Anyone who brings their own eco-friendly tableware can enjoy a discount of NT\$1-5.



15

LIFE ON LAND

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

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Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

25



Publications in SCOPUS

29



Course units

1.9%



Percentage of all Taiwan publications

336



Students who chose the course units

Research

Uncovered the Mystery of the Endangered Formosan Flying Fox

The flying fox is a large bat species found in Liuqiu, the Philippines, and Taiwan, which is currently listed as an endangered species. Dr. Wen-Ya Ko from NYCU's Department of Life Sciences collaborated with Dr. Masako Izawa from the University of the Ryukyus, Dr. Chen Shiang-Fan from the National Taipei University, and Dr. Cheng Hsi-Chi from the Endemic Species Research Institute to use next-generation genome sequencing technology to examine the genetic diversity of flying foxes and construct an allele frequency spectrum, to calculate the number of flying foxes in Taiwan and Japan. The research revealed that the population size of the Formosan flying fox steeply declined about 28 years ago, dropping from 2324 to 223. The finding led the team to propose that the Taiwan flying fox is on the verge of extinction not because of habitat abandonment but due to a population reduction caused by significant ecological pressure. The work was published in the international academic journals *Biotropic* and *Journal of Heredity* in March 2021.





Lanyu's Creek Remediation Controversy and Taiwan's Deliberative Democracy

Professor Mei-Fang Fan from the NYCU Institute of Science, Technology, and Society has long studied environmental justice and deliberative democracy. From the perspective of the next generation's deliberative system, she analyzed the controversy of the government's forceful remediation of creeks in Lanyu. The failure to consider Tao people's tribal habits and the island's ecology triggered resistance from the Tao people, who feared that the cement riverbed would damage the natural landscape and biological habitats. To save the creeks, non-governmental organizations were established one after another. The controversy delayed the project for more than a year, and the construction works did not resume until the Tao people's opinions had been considered. This case study showed the international community how important the local knowledge of Taiwan's indigenous tribes is when it comes to environmental governance. It also revealed how civic engagement and actions can make up for failings in the governance system, emphasizing the importance of incorporating diverse communication and dialog in environmental governance. Professor Fan's book *Deliberative Democracy in Taiwan: A Deliberative Systems Perspective* was published internationally, thereby facilitating the spread of Taiwan's democratic experience.

Social Impact

Protecting the Ocean and Fulfilling the Responsibilities of a Global Citizen

To fulfill the university's social responsibility, NYCU's EMBA—Zi Zhu Master of Business Administration Association integrated technology and humanities to address the healthcare needs of remote villages, actively giving back to society and caring for environmental sustainability. In October 2021, the association organized the "Safeguarding Health, Protecting the Ocean—Baseball Donation × Free Clinic × Beach Cleaning Action" event at the Penglai Elementary School in Su'ao, Yilan. The event centered on "health," caring for the people and marine environment of remote villages. Adults and children were invited to participate. Activities at the event included:

1. A tee-ball match for children and a baseball donation ceremony
2. A free community health clinic and health promotion services offered by the National Yang Ming Chiao Tung University Hospital and the Yilan County Public Health Bureau
3. A beach cleanup through cooperating with the local ecological conservation association to protect the habitat of the little tern



Student Cultivation

Green Classrooms - Leaving No Trace on Yangmingshan

The East-to-West Thru-Hike in Yangmingshan is a 25-km-long hiking trail that crosses 10 peaks, testing hikers physically and mentally. Since 2020, NYCU has worked with the NYCU Mountain Climbing Club to organize a hike of the East-to-West Thru-Hike in Yangmingshan for students and faculty members. The aim of the hike is to boost their health and promote self-realization, teamwork, and mountain and forest conservation. Since the Thru-Hike is rather challenging for those who do not exercise regularly or who lack mountain climbing experience, more beginner-friendly trails are also planned from next year, such as those that only go halfway or those that start from other mountain passes. Over 100 people participate each year, making this a grand annual event for NYCU. The concept of leave no trace (LNT) is practiced throughout the event. Through close contact with the mountains, faculty members and students can learn to be friendlier toward the environment and to hone their mental and physical fitness. Having teachers and students participate in shared outdoor activities can also bring them closer together.

Improving the Campus Environment Through Mountain Cleanups

To look after our learning environment, the Tzu Ching Club, Eco Designer Club, and Military Training Office worked together to encourage students and faculty members to participate in the “Anti-Smoking, Anti-Drug Eco-Friendly Mountain Cleanup.” A total of 37 teachers and students participated in the event. Despite the breeze and light rain, participants put on gloves, picked up tongs and trash bags, and removed trash from roadsides and the grass to sort and recycle. At the end of the event, the Military Training Office promoted the importance of “protecting the environment of the mind—say no to smoking and drugs” to establish a pure and wholesome Yangming campus.



Stewardship

Campus Planning That Integrates Ecological Construction Techniques to Preserve the Campus Ecosystem

NYCU’s Chiaotung campus in Hsinchu and Yangming campus in Taipei are both located on hillsides. The western edge of the Chiaotung campus is an area of low-density development with a natural ecological landscape and habitats full of native plants. The campus has many green buildings, especially Engineering Building 5, which received diamond certification. Its architectural design is in line with nine indicators including biodiversity, daily energy conservation, and carbon dioxide reduction, paying attention to symbiotic harmony with the environment and sustainable development. The Yangming campus is going through a reorganization stage of its buildings. The remediation of the hillside will involve a preliminary safety inspection to assess the current conditions of the land. Construction on flat land, meanwhile, will incorporate ecological construction methods to emphasize environmentally sustainable design elements—such as planting natural plants and using renewable and energy-saving building materials—and reducing harm caused to the environment. The Baxian Canal waterscape on campus will be renovated to include plants and green space as well as permeable pavement. This can help regulate the climate and reduce heat.

Student Clubs Care for Stray Animals on Campus, Demonstrating the Success of Life Education

NYCU’s Dogs Club and Life Care Club take care of stray animals on campus. Members track the conditions of stray dogs on campus, feeding them at regular spots and helping to vaccinate them against diseases. Every semester, NYCU holds the “Doggy Photography Competition” and “Dog Washing Conference,” as well as life-education lectures. For example, the CEO of the Taiwan Animal Equality Association was invited to give a lecture on “Expanding the Footprint of Compassion: Becoming a Guardian of Animals.”

16

PEACE, JUSTICE AND STRONG INSTITUTIONS

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.



80

Publications in SCOPUS



139

Course units

6.4%



Percentage of all Taiwan publications



2701

Students who chose the course units

Research

Law, Human Rights, and Transnational Labor Mobility

The NYCU International Institute for Cultural Studies received funding for the “Conflict, Justice, Decolonization: Critical Studies of Inter-Asian Societies Project” as part of the Featured Areas Research Center Program of the Ministry of Education’s Higher Education Sprout Project. In particular, the sub-project “Unequal Citizens and Legal Reform in the Inter-Asian Context: Trans-local GHI Collaboration Platform” aims to build transnational partnerships to address different forms of social conflict and inequality in developing countries, especially concerning refugees, migrant workers, stateless persons, and human trafficking in the context of mass migration. The project integrates the research of interdisciplinary academics to discuss the mentality, laws, and institutions of discrimination, oppression, and violence that contributed to the marked exclusion in societies. Academics and multinational NGOs have shared their experiences to promote academic research interventions, legal deliberation, and policy formation. This year, the project organized a series of workshops under the title “Law, Human Rights, and Transnational Labor Mobility,” addressing issues such as the human rights of flagless fishermen, the international labor equality policy of the temporary transnational labor system, statelessness, and labor exploitation.

Cold War Research

The existing Cold War research in international academia, along with the declassification of historical archives in various countries and the broadening of research perspectives, have not only highlighted regional differences and associations concerning perspectives on the global Cold War (particularly with regard to developing countries) but also revealed how cross-referencing multiple archives is conducive to understanding important diplomatic and military events during the Cold War and the roles of key actors. For this reason, the Cold War research group of NYCU's Institute of Social Research and Cultural Studies established the academic research website "Cold War Frontier" to gather the works of NYCU academics that have long researched the Cold War. The website helps researchers systematically integrate existing research results, reference the Cold War history of other countries and societies, and grasp international Cold War research trends. This body of comparative and cross-border research will continue to accumulate, expand, and deepen Taiwan's research on the Cold War. NYCU also holds regular events to connect researchers interested in relevant issues.

Studying the Immune Response of COVID-19 Cases to Provide a Reference for Vaccine Administration Policies

To understand the existence of antibodies in those who were infected with COVID-19 in Taiwan and the possible risk of re-infection, the Taiwan Centers for Disease Control (CDC) of the Ministry of Health and Welfare entrusted NYCU's Research Center for Epidemic Prevention with conducting a study on the immune response of COVID-19 patients and analysis of their antibody titer (the period of time the antibody remains in the body). This is Taiwan's first official COVID-19 patient immune response report, which can serve as an important reference for future vaccine administration policies. Researchers will evaluate whether there are differences in antibody changes between infected and vaccinated patients. The data can be used as a reference to determine the duration of protection following vaccine administration.

Social Impact

"Hakka Language Development Act" Local Citizens Forum

After the 2018 amendment to the Hakka Basic Act designated Hakka as a national language, the Hakka Affairs Council drafted the "Hakka Language Development Act" after considering other countries' legislation or measures that promote minority languages and after consulting academics and experts in relevant fields. NYCU's International Hakka Research Center helped organized citizen forums in Hsinchu to promote the spirit of civic participation, where experts, academics, the general public, civil organizations, and relevant stakeholders who care about the development of Hakka language had opportunities to express their opinions and participate in the legal process of bringing in Hakka language development policies. The forums produced new insight into the opinions of the general public and relevant NGOs, and they will provide a reference for future amendments.

Lecture and Forums of the School of Law

The NYCU School of Law regularly holds lectures and forums to discuss issues related to human rights, labor rights, digital governance during the pandemic, democratic governance in times of pandemic prevention, and disobedience under democracy and the rule of law. The forums provide an open platform for everyone to join in the discussion.



Promoting the Application of PPP in the Big Health Industry

A public-private partnership, or PPP, refers to a cooperative model that combines the strengths of the public and private sectors to jointly achieve public policy goals. In response to the COVID-19 pandemic, Taiwan's pandemic prevention system promoted some successful cases of PPP but also caused much controversy. To identify the most suitable PPP model for Taiwan's epidemic prevention scientific R&D and industry-academia collaboration, NYCU's Research Center for Epidemic Prevention, One Health, and the Asia Pacific Public-Private Partnership Association worked together to organize the seminar "Application of PPP in the Big Health and Epidemic Prevention Industries," in the hopes of gathering opinions from various parties to find the most suitable cooperation mode.



Student Cultivation

Muslim Film Festival "Tafakkur"

The three-day "Tafakkur" Muslim Film Festival was organized by the NYCU International Institute for Cultural Studies and featured three main themes: politics and religion, women's voices in Muslim society, and Islamic theology debates among contemporary Muslims. A number of films and documentaries that observe and explore various conflicts and injustices in the Muslim world were screened at the festival, while keynote speeches and director talks were also arranged. A number of academics and directors were invited to discuss contemporary Muslims as reflected in different communities and the problems they face in the social, cultural, and political environments in which they live. The discussions and exchanges aimed to enable participants to experience, reflect on, and understand the Muslim world.



16 PEACE, JUSTICE AND STRONG INSTITUTIONS

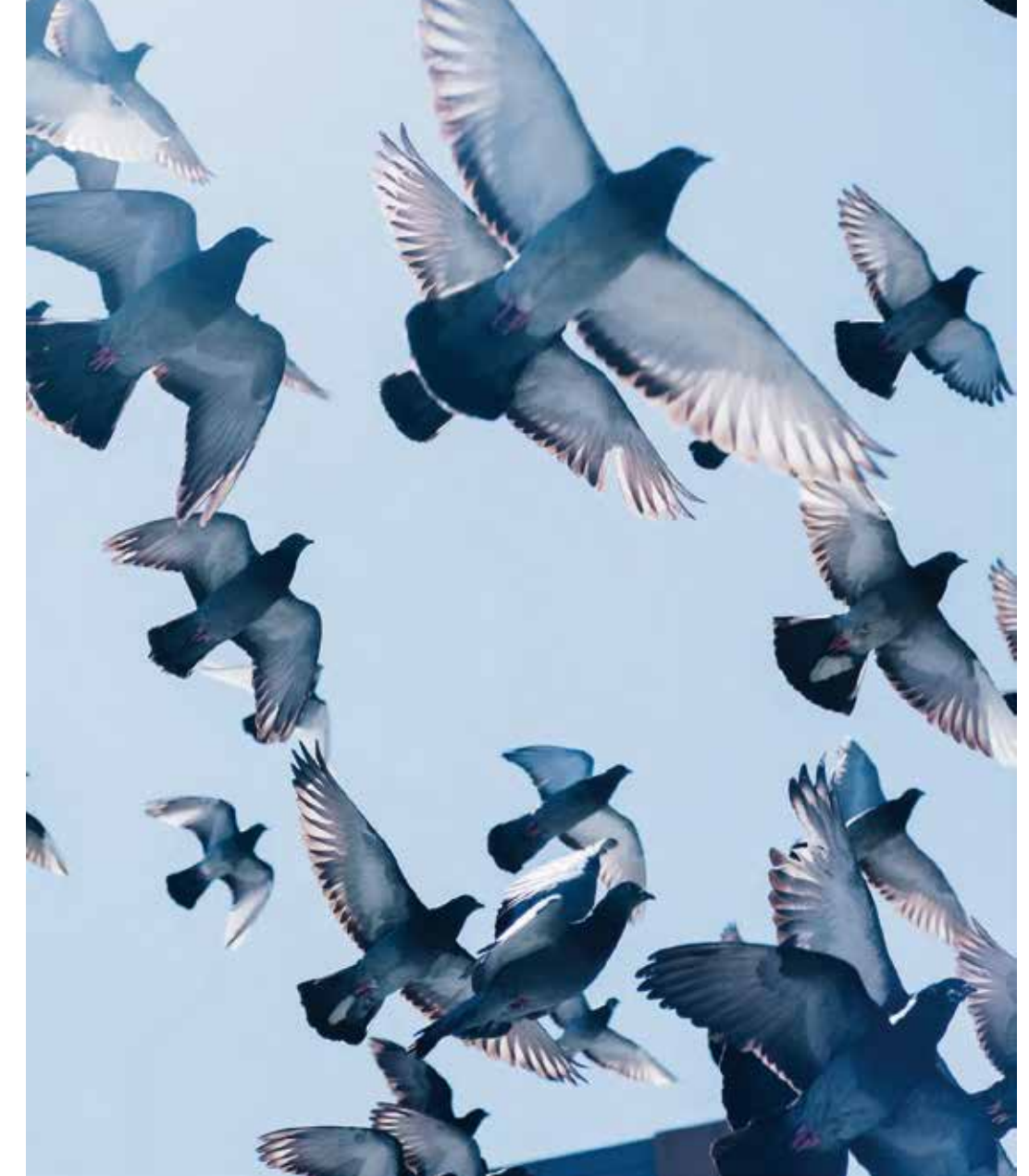
Student Cultivation

Staring into Suffering, Reflections on War

As part of its courses, the NYCU Liberal Arts College designed a series of events under the title “Staring into Suffering, Reflections on War.” In the context of the back end of the COVID-19 pandemic and the waging Russo-Ukrainian War, students and teachers were encouraged to examine wars that have been fought between groups and reflect on the human experiences that result from war through online courses, board game workshops, documentary discussions, and landscape surveys.

Precision Health Regulatory Science Camp

To promote professional training on forward-looking topics such as precision medicine and smart medicine, the Department of Bioscience and Technology and the School of Law worked together to organize the “Precision Health Regulatory Science Camp.” Regulatory science refers to the development of laws and regulations to control pharmaceuticals based on verified science. It is closely tied to the launch of biotech products, business strategies, and industrial policies. Course topics cover relevant laws and regulations such as drug marketing, biologics, medical device marketing, vaccine research and development, and gene editing-related methods in response to important issues in the public health and biotechnology industries, as well as the urgent need for domestic talent training.



Stewardship

Open Declaration of Anti-Corruption and Pro-Academic Freedom

To state NYCU's firm stance on anti-corruption and its support for academic freedom, NYCU has formulated and publicly released the “National Yang Ming Chiao Tung University Anti-Corruption Declaration” and “National Yang Ming Chiao Tung University Academic Freedom Declaration.” In addition to relevant provisions regarding personnel appointment, such as the prohibition of appointing persons with corruption or other criminal charges resulting in a prison sentence, the anti-corruption declaration sets out regulations that the faculty should abide by as well as the relevant punishments for violating the declaration. NYCU fully supports academic freedom. It protects the rights and interests of teachers and researchers and respects free and open academic discussions. The declaration clearly states that our teachers and researchers are protected by academic freedom and enjoy autonomy within legal boundaries.

17

PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

135



Course units

2340



Students who chose the course units

2271



International Co-Authoring SDG-Related Papers



Research

Building a Disaster-Resilient Homeland

Founded over 20 years ago, the Disaster Prevention and Water Environment Research Center is committed to researching natural disasters and water environment technology, and it has long assisted the government in developing disaster-prevention policies, disaster investigations, post-disaster reconstruction, and talent training. For years, the center has continually supported the research needs of government agencies and implemented major cooperative education programs such as the Ministry of the Interior's "3D Land Deformation and AI-Assisted Spatial Analysis Technology Development," the Water Resources Agency's "Reservoir and Water—Conveying Structure Inspection and Safety Evaluation," the "Flood Warning and Flood Prevention Integration Plan" of the River Management Offices, and seawall risk assessments for city and county governments, reflecting academia's contributions toward the government's flood control works. Other technical contributions to disaster prevention include the Forestry Bureau's "Disaster Mitigation Strategy Development and Safety Monitoring for Potential Areas of Large-Scale Collapse in State-Owned Forests," the Environmental Protection Agency's high-resolution survey and real-time monitoring technology for soil and groundwater pollution, and the earthquake resistance of high-tech factory buildings.

Multinational Study on Liver Disease

Professor Mei-Hsuan Lee from the NYCU Institute of Clinical Medicine was the principal investigator for a multinational survey on liver disease. This was the first international transnational study across Taiwan, Vietnam, Indonesia, Pakistan, Thailand, the Philippines, India, Hong Kong, Malaysia, South Korea, and Singapore, surveying a total of 7500 people. The survey found that Taiwanese people have significantly better knowledge, understanding, and attitudes regarding liver disease than people in the other surveyed countries. The health literacy of Taiwanese people will help Taiwan reach its goal of eliminating viral hepatitis by 2025.

17 PARTNERSHIPS FOR THE GOALS



Social Impact

Annual Sustainable Development Conference

On November 5, 2021, the NYCU Center for Institutional Research and Data Analytics, the Higher Education Sprout Project Office, and University Social Responsibility Promotion Office co-organized the “2021 Conference on Institutional Research, Sustainable Development Goals, and University Social Responsibility.” The purpose of this conference was to encourage universities to constantly review whether campus policies and actions are in line with global sustainable development goals, while looking toward technological development and pursuing excellence. In response to the pandemic, the conference was streamed online and held as a virtual conference. President Han-Chieh Chao of National Dong Hwa University and President Jing-Yang Jou of National Central University were invited to give speeches and to share their insights into the strategies that universities can take to promote sustainability on campuses. The conference also invited NYCU students who won the “1st UN SDGs Research Poster Competition” to present their research on various topics of sustainability. More than 210 researchers and students who have made great contributions to this field of institutional research or who are concerned about sustainable development issues joined this event. More than 100 participants watched the livestream during each session. The event received very positive feedback from all participants.

University Social Responsibility Projects

NYCU’s university social responsibility (USR) project “Tribal Star Incubation—Smart Health Empowerment in Rural Areas” integrated resources from several universities and community organizations to establish a rural medical training center in the Nanao region. The center has cultivated local medical personnel with cultural sensitivity and digital skills, to empower our local partners and jointly promoted health in rural areas. For the “Community Active Aging—Strengthening Physical Fitness, Intelligence, and Skills” USR project, NYCU also collaborated with the New Taipei City Banqiao District Hsiao Chung-Cheng Hospital Community-Based Dementia Care Center, the Zhongxiang Elderly Long-Term Care Center, Taipei Veterans Home, New Taipei City Yonghe District Minguang Community Development Association, New Taipei City Waste Creative Museum, Taipei City Beitou District Jiqing Community Development Association, and Qiyang Adult Day Care Center, among other NGOs. In addition, NYCU has three USR seed projects that work with local communities, NGOs (such as the Eden Social Welfare Foundation, the Presbyterian Church in Taiwan, Altruistic+, etc.), and students and teachers at different universities and schools (National Taiwan University, University of Taipei, Nanao Elementary School, etc.). NYCU will continue to promote the sustainable development of local affairs.





Bringing the World into the Classroom

Fuli Junior High School is the only indigenous village school district in Hsinchu City. Considering that the school is located on the outskirts of the city, and in response to Taiwan's vision to become a bilingual nation by 2030, the NYCU Office of International Affairs was invited by Fuli High School to cooperate over the "Bringing the World into the Classroom" event, where international students share their cultures with the students of Fuli Junior High School. For example, Palestinian doctoral student Mohammed W.I. Sulaiman showed students how people in Muslim countries put on a turban and performed a traditional prayer dance from his home country. So far, NYCU has run five cultural exchange events with international students at Fuli Junior High School. In addition to Palestine, students from Brunei, the United States, Brazil, Vietnam, Indonesia, India, Thailand, and other countries also introduced their cultures to the students of Fuli Junior High School. The "Bringing the World into the Classroom" event mainly consists of international university students sharing their cultures and traditions with school students from grades 7 to 9. By talking about their favorite sports, science experiments, or web design, school students participated in casual English-language conversation. Such international exchange and action to support rural education bring NYCU closer to the community.

Student Cultivation

University Alliance in Talent Education Development (UAtED)

The UAtED, which comprises 16 leading Asian universities, held its first industry-academia information-sharing session on December 9, 2021. The event was organized by NYCU and co-organized by NCKU and NCCU, attracting many technology, medical, and financial enterprises. NYCU was also entrusted with the important task of linking leading universities and enterprises to engage in industry-university cooperation. The UAtED was established in 2019 by the Sayling Wen Cultural & Educational Foundation and the University System of Taiwan. Members include 16 leading universities across Taiwan, Singapore, Malaysia, and Hong Kong. The goal of the alliance is to enable knowledge transfer via cross-border industry-academia exchanges. In addition to electronics and IT, the event also touched on R&D experience in biotech medicine and business management. Going forward, the alliance hopes to continually facilitate multinational industry-academia collaboration so that research results can have a concrete benefit for society.

Creating an Immersive Online Space with the Assistance of International Partners

To enable higher education institutions around the world to continue international education despite the impact of the COVID-19 pandemic, NYCU actively cooperated with international partners to develop opportunities for collaboration. From July 15 to 16, 2021, NYCU collaborated with the National University of Singapore to launch the "Joint Virtual Immersion Program," which involved 150 students across four universities in different regions of the world. Professor Sirirat Sae Lim of NYCU's Institute of Management of Technology and Professor Tian-Li Wu of the International College of Semiconductor Technology were invited to give speeches at the event, sharing Taiwan's technological development and the features of NYCU's industry-academia research collaboration with students from Singapore, Hong Kong, China, and Taiwan. Another 16 NYCU students also participated in the event, hosting four cultural workshops, in which they shared Taiwan's indigenous cultures and campus life with students of NYCU's sister universities. The "Joint Virtual Immersion Program" was intended to create an international exchange platform for teachers and students to share professional knowledge and create opportunities for bilateral interaction. Thanks to the help of international partners, teachers and students could expand their international horizons and continue their international education, even if borders were closed due to the pandemic.



International Partnerships

NYCU is committed to collaborating with local government agencies, as well as universities and research institutes from around the world, to achieve the Sustainable Development Goals. In 2018, the Chiaotung campus and TAISE signed the Letter of Intent on Sustainable Development Cooperation. Furthermore, NYCU has also worked with other government agencies and international institutions, including the following:

- NYCU collaborated with the Sayling Wen Cultural & Educational Foundation to establish the University Alliance in Talent Education Development (UAiT-ED) to cultivate future industry-academia talent worldwide.
- As a member of the Association of East Asian Research Universities (AEARU), NYCU helped to develop an online classroom program so that students and teachers worldwide can learn together in diverse ways.
- The CDC of the Ministry of Health and Welfare commissioned “NYCU’s Research Center for Epidemic Prevention” to research the immune response of COVID-19 patients as an important reference for future vaccination policies.
- Working with TSMC, the university founded the TSMC × NCTU Energy Education Center, a high-quality learning environment in a sustainable building that provides lifelong learning opportunities for all.
- NYCU has collaborated with multiple government organizations, cultural and educational institutions (Ministry of Culture; Ministry of Education; Hsinchu City Cultural Affairs Bureau; Endemic Species Research Institute, Council of Agriculture, Executive Yuan; the Bat Association of Taiwan; National Tsing Hua University; Center for Urban Planning and Design of Chung Yuan Christian University; Kuang-Fu High School; Jiangong Primary School; and Lixel Inc.) to promote the Hsinchu Living Museum project and enable the public to understand the WWII-era historical site and military community culture of Hsinchu's Sixth Fuel Factory, to facilitate the sustainable development of the local culture.
- With the Community Angel and Yang-Ming Crusade volunteer groups, the Yilan City Office, village chiefs across Yilan City, and the chairmen of community development associations, the National Yang Ming Chiao Tung University Hospital conducts interviews and assessments of senior citizens over the age of 65 in Yilan, providing care and necessary support for senior citizens with urgent needs.
- As part of the Ministry of Education's Aesthetics and Design Curriculum Innovation Plan, the university promotes aesthetic education and teacher empowerment training to improve the public's aesthetic literacy.
- The International Center for Cultural Studies (ICCS) established partnerships with 12 international academic institutions, forming a research team of 36 experienced researchers and 24 young academics from around the world to engage in discussions and plan the establishment of the “Global Humanities Institute,” focusing on “migration, logistics, and inequalities of the current global context.”
- NYCU worked with the Ministry of Health and Welfare to implement community health and welfare counseling plans for the outlying islands, conducting counseling work in Kinmen County, Penghu County, Lianjiang County, Liuqiu Township, and Pingtung County to promote the mental and physical health of the public.
- In addition, NYCU partnered with many NGOs as part of its service-learning collaboration, including World Vision Taiwan, Genesis Social Welfare Foundation, Huashan Social Welfare Foundation, Syin-Lu Social Welfare Foundation, Fu-Hsin Care Association, and ChuHsin Family.