

Published by National Taiwan University
Website: <http://homepage.ntu.edu.tw/~secretor/ntunewsletter>

NTU



NEWSLETTER

APRIL 2012 / No. 29

NTU Research to Improve Quality of Life

Alumni Contribute to Arts & Humanities

New Management College Convention Hall

Azalea Festival Highlights NTU Strengths

Special Report
Entrepreneurship Promo



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NTU AT A GLANCE

Alumni Association Holds Lecture Series to Share Knowledge



From the President's Office

NTU has boasted a rich tradition of the arts and humanities since its founding. Over the years, the university has produced numerous authors and artists who have made outstanding contributions to the world of literature and art. These include such luminaries as authors Kenneth Pai, Kwang-chung Yu, Jo-his Chen, Tzu Ouyang, Chao Yang, Chia-tung Lee, Fang-ming Chen, Chen Chien and Hsi-kuo Chang, as well as dancer Man-fei Lo and conductor Shao-chia Lu. While the artistic achievements of these influential NTU alumni can be attributed to their personal talent and determination, the thriving atmosphere of arts and humanities here at NTU certainly served as a source of inspiration.

NTU has pursued many paths in its promotion of the arts and humanities. The NTU Center for the Arts regularly invites Taiwanese and international artists and arts groups to perform on campus and provide arts education through a resident artist program. The university also offers fascinating arts and humanities courses, one example of which is Kenneth Pai's "Aesthetics of Kun Opera."

Moreover, the university presents awards for excellence in the arts and humanities. For many years, the NTU Literature Award has encouraged exceptional young people to explore their creative potentials. The NTU Philosopher Laureate Award was inaugurated in 2011. The NTU Library also supports the arts and humanities by holding exhibitions of artworks by NTU students.

NTU is committed to the promotion of the arts and humanities. An environment rich in creativity and reflection encourages students to pursue their creative aspirations and brings a deeper fulfillment to their lives.

李嗣涔

President
Dr. Si-chen Lee

PRESIDENT LEE CALLS ON HIGH SCHOOL STUDENTS TO AIM FOR NTU DURING AZALEA FESTIVAL

Every March, the myriads of azaleas around the NTU campus burst into bloom producing wonderland of colorful blossoms! The colorful azalea is the university flower of NTU, and it was former NTU President Wei-jao Chen who inaugurated the first NTU Azalea Festival back in 1997.

President Chen invited Taiwan's high school students to visit the NTU campus during the festival to appreciate the colorful display of azalea blossoms and enjoy the exciting arts and academic events. The festival was not just an opportunity to recruit the best and the brightest students in Taiwan, it was a chance to showcase the fulfilling life enjoyed by NTU students.

With exciting events had been scheduled for the entire month of March, this year's Azalea Festival formally commenced with an opening ceremony outside the NTU Sports Center on March 10. Several highlights of the festival were held on the weekend of March 10-11: a department expo, a student club expo, an alumni homecoming and a job recruitment fair. The cool, drizzly weather could not deter the azaleas or the visiting students, public or returning alumni from coming out to join in the fun.

During the ceremony, President Si-chen Lee called on the nation's high school students to set their sights on studying at NTU because the university was well on its way to join the ranks of the world's 50 top universities. He pointed out that this year the National Science Council had approved the establishment of two new world-class research centers at NTU: a cancer research center to be established jointly with the University of Texas MD Anderson Cancer Center, and an intelligent robot and automation research center to be set up in cooperation with Pierre and Marie Curie



University, the French National Center for Scientific Research and France's National Institute for Research in Computer Science and Control. Together with the Intel-NTU Connected Context Computing Center, which opened last year, the university will have three world-class research centers.

Among the fun events held after the opening ceremony was the final round of a remote-control mobile ping pong ball launcher competition. The rules required student teams to construct their launchers from scratch using simple materials, such as screws, rivets, bearings, gears and rubber belts, and forbid the use of store-bought components. The object was to guide the launchers through an obstacle course to a designated launch site and then fire a ping pong ball into a target area.

The month-long festival also offered a great variety of performances and exhibitions. Among them, the renowned cellist Gavriel Lipkind gave a recital, the Department of Drama and Theatre performed *The Talking Cure*, a play about the psychoanalyst Carl Jung, and artist Gretchen Kai Halpert put on an exhibition of scientific illustrations.





NTU held its first NTU Start-up Day on March 4. The day-long event brought together prominent NTU alumni entrepreneurs to promote an atmosphere of innovation and entrepreneurship on the NTU campus and encourage the young talents at NTU to put their great minds to work in creating new businesses. Under the theme "Creating Value Through Academic Research, Contributing to Society Through New Businesses," the organizers and founding participants declared that it was the responsibility and mission of the members of the NTU family to create greater economic value, boost the nation's competitiveness and give back to society.

The founding participants at NTU Start-up Day included some of NTU's most successful alumni: Quanta Computer Inc. Chairperson Barry Lam, Epoch Foundation Vice President Josephine Chao, Amtran Technology Co. Chairperson Alpha Wu, Bionet Corp. Chairperson Christopher Tsai, Global Mobile Corp. Chairperson Rosemary Ho, Etron Technology Inc. Chairperson Nicky Lu, CyberLink Corp. Chairperson Jau Huang, iD Innovation Inc. Chairperson Wu-fu Chen and Medigen Biotechnology Corp. Chairperson Stanley Chang.

The event's main organizers were the Office of Research and Development, Division of Industrial-Academic Cooperation and the

Leading Businesspeople Promote Entrepreneurship at First NTU Start-up Day



Prof. Liang-gee Chen, deputy director of the Office of Research and Development and director of the Creativity and Entrepreneurship Program, noted that universities regard research rather innocently, that for them research is just research and they don't know whether they can use it to create value. Prof. Chen said that now with the establishment of NTU Start-up Day NTU would regularly invite venture capital firms



Creativity and Entrepreneurship Program.

Addressing the audience, President Si-chen Lee said he looked forward to the elimination of the divide between universities and the business community. Emphasizing that education, research and service were the responsibilities of universities, he lamented that even though NTU had entered the ranks of the world's top 100 universities and produced world-class research, it had stalled at the stage of research and been unable to benefit society by creating value for industry.

President Lee further declared that as we enter into the knowledge economy of the 21st century, a new and important mission for universities will be to lay the foundation for the creation of business.

to meet directly with the university's research teams and view their achievements with the hope that these exchanges would lead to opportunities for the creation of new businesses.

Quanta Chairperson Lam shared his 40 years of entrepreneurial experience with the audience. Noting that using the methods of the past today is not necessarily the best approach, he said that each era had its distinctive models for business creation but that students still could find new models by learning from the experiences of the older alumni. Chairperson Lam said he believes that coupling the intelligence of NTU students with the support of so many outstanding alumni is certain to produce outstanding results.

Donation Allows Opening of New College of Management Convention Hall



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President Si-chen Lee (third from right) along with Sungreat President Cheng-ta Sun and his wife Ching Yuan (fourth and fifth from right) join other honored guests in celebrating the opening of the Sungreat International Convention Hall.

The College of Management held a ceremony to mark the official opening of the Sungreat International Convention Hall and Learning Center on March 5. The construction of the convention hall and learning center, which occupy the basement of the college's Building 2, was made possible by a generous NT\$15 million donation provided by EMBA graduate Cheng-ta Sun, president of Sungreat General Supply Co., one of Taiwan's leading exporters of auto parts and accessories.

The new facilities will be used as a platform for meetings and exchanges with international management experts and business leaders. The first such meeting to utilize the convention hall was a two-day forum for EMBA leaders from Taiwan and China that took place in March. The facilities also include a VIP reception room, a reading room, and an alumni and publishing center. Moreover, the clever renovation design resolved the basement's lack of natural light and created energy savings by letting in natural sunlight for illumination.

The College of Management's Dean Shu-hsing Li had the inspiration to renovate the basement while implementing the college's continuing education

programs. Dean Li was moved by the enduring thirst for knowledge of the business executives in the EMBA program and saw their spirit of drawing pleasure from learning as a model for all of the college's students.

Sungreat's President Sun, who graduated from the college's EMBA program in 1995 and has served as head of the EMBA alumni association, shares an admiration for continuing education with Dean Li and believes people should never stop learning and always be prepared. Upon hearing of Dean Li's desire to renovate the basement for continuing education purposes, Sun decided to give back to his alma mater by offering this generous donation.

The honorable guests attending the opening ceremony included President Si-chen Lee, top-ranking NTU officials and the deans of each of the university's colleges as well as students and faculty of the College of Management and alumni of the EMBA program.

During the ceremony, President



The self-effacing Cheng-ta Sun, president of Sungreat General Supply Co., is an admirer of continuing education.

mater to further improve university facilities.

Dean Li expressed his gratitude to both President Sun and his wife, stating that only with Sun's gift would the renovation have been possible. Dean Li noted that, more than other NTU colleges, the College of Management faces intense international competition to attract first-rate instructors and students and that the college would continue to upgrade its facilities in order to meet this challenge.

The self-effacing Sun said that he hoped his modest donation would inspire other NTU alumni to show their concern for society and give back to their alma mater.

Two Professors Commended with NSC Science Professional Medals

The National Science Council has presented the NSC Science Professional Medal to Prof. Chien-jen Chen of the Graduate Institute of Epidemiology and Preventive Medicine and Prof. Ming-cheng Tsai, dean of the College of Law. The NSC confers the medal to commend scientists who made outstanding contributions to the formulation and promotion of development strategies for scientific research in Taiwan.

In addition to his work at NTU, Prof. Chien-jen Chen is vice president of Academia Sinica. He also served at the NSC, where he played an influential role in promoting national technology programs, formulating technology laws and developing science parks. Dean Tsai has been an important promoter of technology law and academic ethics and has made substantial contributions to the protection of intellectual property rights in Taiwan.



Devotion to Conservation Earns Dean Forest and Nature Conservation Award



Dean of International Affairs, Hsiao-wei Yuan, was named a recipient of the Council of Agriculture's 2012 Forest and Nature Conservation Award on March 12. The COA recognized 15 influential conservation advocates with the award this year.

Dean Yuan, a professor in the Department of Forestry and Resource Conservation of the College of Bioresources and Agriculture, has been engaged in educational and research work for over 18 years. For years, she has led students in conducting ecological research on the birds and wild animals of Taiwan-- inspiring and educating a generation of forestry and nature conservation specialists.

Besides her teaching and research work, Dean Yuan has promoted ecological conservation on a wide range of fronts. She has joined numerous government committees overseeing conservation policy and amply demonstrated her selfless devotion to the cause of nature conservation by serving as an unpaid director or supervisor on the boards of many associations.

At annual meetings and committee meetings of CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora), she has represented Taiwan and acted as a spokesperson for the nation's conservation efforts.

The dean's instructional and advocacy work has been multifaceted-- from direct action to workshops and lectures and even books and television programs. She has identified the location of and written blogs about wild birds on the NTU campus and visited nature areas and parks to conduct wildlife resource surveys that she has used to design exhibitions and self-guided tours for the public.

Commissioned by the Forestry Bureau's Recreation Division, the dean has designed environmental education courses and led teacher training workshops for nature centers.

One of her books introduces 110 bird species of Taiwan. As the host of a television series, Dean Yuan in Taiwan's natural beauty and advocated nature conservation and environmental protection.



Two Female Scientists Bring Recognition to NTU

Prof. Grace Chu-fang Lo, dean of the College of Life Science, is one of two recipients of the 5th Outstanding Women in Science Award. Winning the award this year is particularly remarkable as local academic and research institutions recommended the largest number of nominees for the award since its establishment in 2008, making the competition especially stiff. NTU is honored that Dean Lo has brought recognition to the university once again through her exceptional scientific work.

Ph.D. student Wei-chien Yuan of the Institute of Biochemical Sciences joined Dean Lo in bringing honor to the university by winning the Tsuei-chu Mong Scholarship, which was presented for the first time this year. The award's organizers established the scholarship to recognize outstanding female doctoral students who excel in both academics and research.

The top student in her class, Ms. Yuan has participated in the writing of two papers published in major international journals in the short span of three years. One of these, published in the leading journal *Cancer Cell*, explains the discovery of a protein called KLHL20 that plays a key role in tumor progression and shows potential as a new drug target for killing cancer cells.

Dean Lo has received major international recognition for advancing technology vital to the aquaculture industry around the world through her research into white spot syndrome virus (WSSV), which is the causative agent of one of the world's most serious shrimp diseases. She has published the complete genome sequence for the WSSV Taiwan isolate, one of only three WSSV isolates whose full sequence is known. To date, her research papers have been cited 2,031 times. The Institute for Scientific Information lists four of Lo's articles as highly cited in the category of Plant and Animal Science.

The Outstanding Women in Science Award was established by the National Women's League, L'oreal Taiwan and the Wu Chien-Shiung Education Foundation in 2008. It is the only award to recognize exclusively the contributions made by women scientists



Six Professors Receive the 2011 Merit Research Fellow Award

The National Science Council bestows the Merit Research Fellow Award on researchers who have received an NSC Outstanding Research Award at least twice and completed two three-year NSC research fellowships.

Six outstanding NTU researchers earned the prestigious award for 2011. They include:

Distinguished Prof. Kuang-chong Wu of the

Institute of Applied Mechanics, Prof. Tony

Wen-hann Sheu

of the Department of Engineering Science and Ocean Engineering,

Distinguished Prof. Sy-yen Kuo of the Department of Electrical Engineering, Prof. Chung-chin

Kuo of the Graduate Institute of Physiology, Distinguished Prof.

Chern-lin Chen of the Department of Electrical Engineering, and

Distinguished Prof. Ren C. Luo of the Department of Electrical Engineering.



Prof. Grace Chu-fang Lo (third from left), dean of the College of Life Science, poses with other award winners after receiving the 5th Outstanding Women in Science Award.

Four Summer + Programs Offered for International Students This Summer



A Summer + student explores the breathtaking natural beauty of Taiwan.

The Office of International Affairs's Center for International Education has rolled out four Summer + (read: summer plus) programs for international students to give students from around the globe more opportunities to pursue their academic interests and learn about Taiwan at NTU this summer. The programs provide high-quality academic instruction in a range of fields while creating opportunities for cross-cultural interaction with students from around the world.

Summer + students from around the world enjoying their time together in Taiwan.



With the exception of Mandarin language classes, all courses are taught in English.

The Summer + 1: Intensive Program for Chinese and Culture offers intensive Mandarin language courses at different levels that have been designed for international students by the International Chinese Language Program at NTU. The language courses are augmented by courses exploring Taiwan's geography, society and culture heritage. These include The Bio-diversity of Taiwan, Taoism and Culture, Aboriginal Society and Culture, and Taiwanese Music.

Formulated in coordination with laboratories at six NTU colleges, the Summer + 2: Program for Laboratory Research and Culture allows students

to select laboratory programs suited to their individual specializations and interests. Besides learning the latest laboratory techniques in modern, well-equipped laboratories, the students also broaden their horizons by taking courses introducing the culture of Taiwan.

The Summer + 3: Program for Biodiversity, Agriculture and Culture of Taiwan is designed by the College of Bioresources and Agriculture. In addition to receiving academic instruction in the classroom, students explore Taiwan's breathtaking natural beauty, from rocky coastlines to mountains reaching elevations of up to 3,200 meters.

The Summer + 4: Program for Biotechnology is a program combining one week of laboratory experience with one week of the Animal Biotechnology Laboratory Practice Course. Students conduct cutting-edge research with professors in laboratories of their choice and learn core biotechnology research techniques.

Interested student can visit the Office of International Affairs website to get more information and check the application deadlines.

Asian Union of Magnetism Societies Meets in Taipei

The Asian Union of Magnetism Societies held its council meeting in Taipei on March 4. In January, Dean of the College of Science Ching-ray Chang was elected as AUMS president and Prof. Jen-hwa Hsu of the Department of Physics was elected as executive secretary. NTU's prominent role in the organization demonstrates the international leadership position the university has attained in the fields of magnetism and spintronics.



At present, AUMS comprises the magnetism societies of Taiwan, Japan, Korea and China. As Singapore, Vietnam and Australia have expressed their desire to join the

organization, representatives from these nations were invited to attend the Taipei meeting as observers.

The main resolution of the meeting was a call to establish a working group on rare earth minerals and crucial materials. Since AUMS member China is presently responsible for virtually all of the world's production of rare earths, AUMS aims to use this advantage to bolster its global standing.

OIA ATTENDS 7TH UNIVERSITY ADMINISTRATORS WORKSHOP IN THAILAND



Participants in the 7th University Administrators Workshop at Chulalongkorn University in Bangkok, Thailand, pose for a group photo.

Representatives from the Office of International Affairs attended the 7th University Administrators Workshop at Chulalongkorn University in Bangkok, Thailand, on February 16-17. The theme for this year's meeting was "The Role of University International Offices in Times of Global Crisis: Responding to Political, Economic and Natural Disasters." The OIA team reported on its crisis management and response efforts in the wake of the devastating 2011 Tohoku earthquake and tsunami in Japan.

The University Administrators Workshop was established by Japan's Kyoto University to provide a professional platform for international affairs administrators at leading universities in East Asia to engage in exchanges and discussions on implementing and managing university internationalization efforts. This year's workshop was organized by Chulalongkorn University in cooperation with Kyoto University, and was the first to be held outside of Japan. The meeting was attended by about 50 delegates from 16 universities in countries including Singapore, Malaysia, Indonesia, the Philippines and Vietnam. NTU was the only university in Taiwan to send delegates.

The workshop's theme created an opportunity for the delegates

to engage in deep discussions examining the impacts of and responses to natural disasters and political and economic turmoil that have confronted universities in Asia and the Pacific Rim region in recent years. The meeting had three sub-topics: "Initiatives and Actions in Response to the Effects of Political, Economic and Natural Disasters," "Support and Counseling Systems for International Students in Times of Crisis" and "International Networking by International Administration Officers."

Each participating institution was called on to introduce at least one discussion topic under the sub-topics. NTU's delegates gave a presentation on the topic "Preparedness and Response of the University International Office in the Face of Global Natural Disasters." In discussing NTU's response to the 2011 Tohoku earthquake and tsunami, the delegates drew an enthusiastic response for highlighting the beneficial role of social media in providing real-time communication channels in times of natural disaster.

The countries of the workshop's two organizers both suffered devastating natural disasters in recent years: severe flooding in Thailand in 2010 and 2011 and the tragic earthquake and tsunami in Japan.

Chulalongkorn University is the best university in Thailand and ranked highly in world university rankings; it is a partner university of NTU. NTU enjoys both research cooperation and a student exchange program with Chulalongkorn University.



Representatives from the Office of International Affairs present a report at the 7th University Administrators Workshop.

Chulalongkorn University has 18 faculties, two schools, ten research institutes and a student enrollment of approximately 37,000 undergraduates and graduates (which about the same as the number of NTU students). The main campus is conveniently situated in downtown Bangkok. It has a tradition of requiring all students to wear school uniforms, which its Office of International Affairs claims is also welcomed by international students due to the comfort and convenience of the uniforms.

Medical Researchers Publish Paper on Cellular Energy in *Nature*



Prof. Yu-yi Lin and his research team appear in a group photo next to the cover of the February 2012 issue of *Nature* in which their research was published.

A team of Taiwanese researchers from the College of Medicine, NTU Hospital and Academia Sinica, working with their partners at Johns Hopkins University, published the article, "Functional dissection of lysine deacetylases reveals that HDAC1 and p300 regulate AMPK," in *Nature* (February 9). The article details a breakthrough genetic function screening technique the researchers used to investigate the physiological functions behind the dynamic stability of cellular energy. Their research could have valuable therapeutic applications for the treatment of some diseases related to aging, such as metabolic syndrome and cancer.

The article's lead author, Prof. Yu-yi Lin of the College of Medicine's Institute of Biochemistry and Molecular Biology, says that the loss of balance in the dynamic stability of cellular energy can cause many age-related diseases. Prof. Lin points out that the breakthrough of this research is that it utilizes an RNA interference (RNAi) technique to identify how cells control the modification of protein acetylation for the adjustment of their metabolic functions so as to deal with changes in the environment and maintain cellular survival and reproduction.

Working with cultured human cells, the researchers used the RNAi technique to generate genetic interaction profiles. The profiles unveiled relationships between individual protein lysine deacetylases and important substrates that control a broad range of biological processes, including metabolism, development and cell cycle progression. Moreover, the researchers found that acetylation and deacetylation of the catalytic subunit of the adenosine monophosphate-activated protein kinase (AMPK), an important cellular energy-sensing protein kinase complex, is regulated by the opposing catalytic activities of HDAC1 and p300.

NTU Hospital Joins with Swiss Firm to Develop Screening Techniques for Rare Disease

NTU Hospital is cooperating with the Swiss biopharmaceutical company Actelion Pharmaceuticals to develop improved screening techniques for Niemann-Pick type C disease. This collaboration makes NTU Hospital the only medical facility in Asia to be able to

perform screening for and diagnose accurately this rare neurodegenerative disease.



The market for rare diseases is small and investment costs are relatively high. In the past, samples from screening tests performed for Niemann-Pick type C disease in Taiwan needed to be sent abroad for

proper diagnosis. However, medical researchers at NTU Hospital threw themselves into the development of early screening techniques for the disease. Upon learning of the dedication of these researchers, Actelion, which designed a drug for the treatment of Niemann-Pick type C disease, expressed its willingness to cooperate with the hospital in developing pharmaceuticals to treat the disease.

Niemann-Pick type C disease is a rare genetic condition which causes the abnormal metabolism of lipids. Excessive quantities of lipids accumulate in the liver, kidneys, spleen, bone marrow and brain, leading to the malfunction of these organs. Patients may first experience the enlargement of the liver and spleen before ultimately suffering mental and physical deterioration, including difficulty swallowing and impaired motor control. While the age of onset of the disease varies, most sufferers in Taiwan begin to experience symptoms around the age of ten. Within just a few years after symptoms appear, patients may experience a severe deterioration of their condition and even death. At present, there are fewer than ten patients with the disease in Taiwan and approximately 500 around the world.

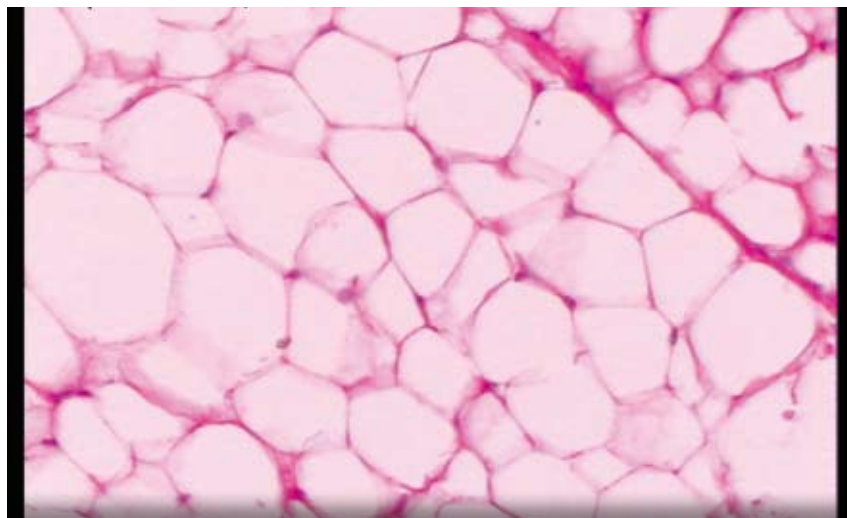


LEADING US CANCER CENTER HELPS FOUND INTERNATIONAL RESEARCH CENTER

Cancer continues to be one of the leading causes of mortality in the world, and has long topped the list of the ten leading causes of death in Taiwan. Although many interventions have been developed to circumvent problems encountered in cancer diagnosis, treatment and prevention, there remains the need for further advancement.

To meet this need, the College of Medicine has joined up with Taiwan's China Medical University and Hospital and the University of Texas MD Anderson Cancer Center to establish the International Center of Excellence in Cancer Research. This new center will build on the existing strengths of these leading Taiwanese medical centers and combine them with those of the MD Anderson Cancer Center, which is recognized as one of the world's finest cancer research and treatment facilities.

The center's mission is to improve the diagnosis, treatment



and prevention of cancer so as to provide the best care for cancer patients in Taiwan and around the world. Research at the center will focus on the discovery of new biomarkers, molecular mechanisms of pathogenesis and metabolomics, signal transduction pathways of cancer cells and the role of cancer stem cells and will pursue the discovery of new pharmaceuticals for the development of novel targeted therapies.

Joining the top-notch cancer research teams of the College of Medicine and China Medical University and Hospital with experts from the MD Anderson Cancer Center will give the new center solid basic research team that will help it achieve the goal of becoming an East Asian cancer research center that ranks among the best in the world. The main objective of the center will be to translate its basic research into applications for the development of new drugs and diagnostic techniques.

On the one hand, the center will pursue "bench to bedside" research with the aim of exploring the molecular mechanisms of cancer. Such research will be focused on

genomics, metabolomics, signal transduction pathways, drug design and screening, animal models for anti-cancer drugs, molecular epidemiology and stem cells. On the other hand, the center will conduct "bedside to bench" research that will address problems encountered during the clinical treatment of cancer patients. Accordingly, researchers at the center intend to develop and provide personalized medicine by delving into such issues as drug resistance, cancer metastasis, cancer recurrence and serious complications resulting from treatment.

Specifically, the following objectives have been set forth for the center: 1) the discovery of novel mechanisms of tumorigenesis, metastasis and drug resistance of cancers, with a specific focus on endemic cancers among ethnic groups in the East and West; 2) the identification of medicine pathways and targets for therapeutics; and 3) the identification of biomarkers for the development of therapies to improve treatment outcomes for cancer patients.



BIOCHIP ALLOWS PARENTS TO TEST CHILDREN FOR DANGEROUS VIRUSES AT HOME



▲ The College of Medicine team that developed the s ViroSensor poses for a group photo.

An interdisciplinary team of researchers working at the College of Medicine has developed an innovative handheld device called s ViroSensor that allows parents to quickly test their children for infections of the influenza A and B viruses, enterovirus 71 and adenovirus without visiting a hospital and without the assistance of a physician. As these viruses pose a serious threat to children in particular and can cause severe illness and even death, the biosensor was designed specifically with their health in mind.

Not only does the s ViroSensor give parents the ability to test their children as soon as symptoms appear, it exploits the concept of telemedicine by permitting them to transmit the device's results to their doctors for analysis via their smart phones. This has the important benefit of allowing proper treatment

to be administered promptly before an infection has developed into a full-blown, potentially fatal illness. Moreover, since the tests can be performed at home, hospital visits are avoided, thus reducing the chances of infection clusters developing and a virus spreading to the public at large.

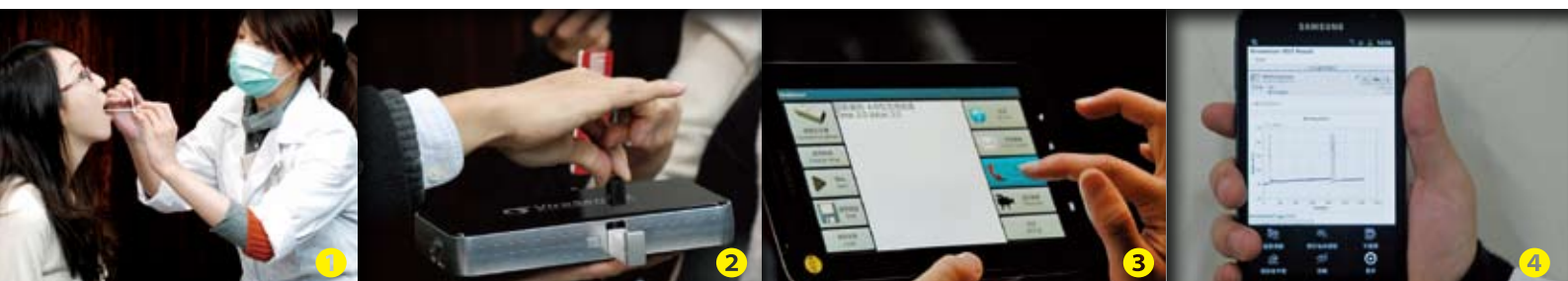
In order to develop the biosensor, Prof. Shi-ming Lin, chairman of the Center for Optoelectronic Biomedicine, assembled a multidisciplinary team of researchers from the College of Medicine whose backgrounds cover seven fields of specialization. Team members included Prof. Pan-chyr Yang, dean of the College of Medicine and a professor in the Department of Internal Medicine, Prof. Luan-yin Chang of the Department of Pediatrics and Graduate Institute of Clinical Medicine, and Prof. Bor-ching Sheu of the Department of Obstetrics and Gynecology at NTU Hospital.

In addition to relying on their medical expertise, the s ViroSensor team also applied their technological prowess to combine some of the world's most advanced technologies with the increasingly popular smart phone. The sensor itself is an enhanced surface plasmon resonance biosensor chip that uses cutting-edge optical nanostructure technology. This means that not only is the chip capable of detecting the four viruses in a matter of minutes, it also achieves an accuracy approaching 90%.

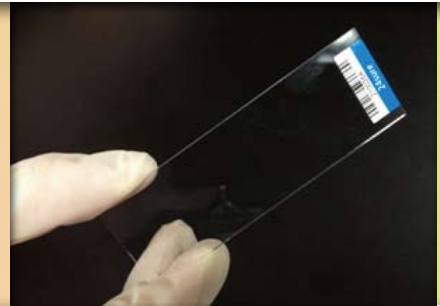
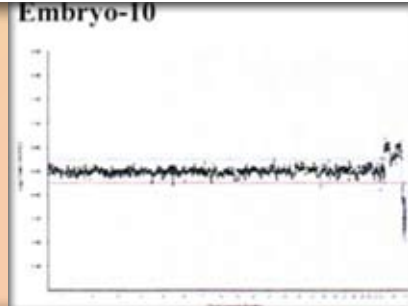
This amazing technology allows parents to know within 12 minutes whether their child has come down with a viral infection. Prof. Shi-ming Lin notes that the speed of the test provides a significant improvement over the traditional method of testing, which requires at least one day and most commonly four to five days. This could be of vital importance, as delaying treatment could lead potentially to the loss of life. Furthermore, the sensor only requires parents to take a sample from the child's throat using a cotton swab.

Highlighting the urgent need for such a device, Dean Pan-chyr Yang adds that since there has not been an outbreak of enterovirus 71 for more than three years the Centers for Disease Control is predicting a major epidemic of the virus this spring.

▼ 1_A nurse takes a sample from the back of a patient's throat. 2_The s ViroSensor biochip is inserted into the testing device. 3_The test results are transmitted via a smart phone to a doctor. 4_The doctor receives the test results on a smart phone.



NTU Hospital Using New Approach to Detect Genetic Diseases in Embryos



Led by Prof. Yu-shih Yang, the reproductive medicine team at NTU Hospital used array-comparative genomic hybridization screening of an embryo biopsy taken during the blastula stage to treat a couple that had suffered recurrent miscarriages due to chromosomal translocation. The result was the successful birth of a healthy 2,750-gram baby girl in November. The team's success places them at the forefront in the use of this technique in Asia.

Embryo biopsies obtained during the blastula stage require the removal of five to ten cells from the trophoblast and do not harm the cells of the embryo. This approach is a form of chorionic villus (placental tissue) sampling that serves as a new tool for the detection of chromosomal or genetic disorders in the fetus.

The couple in this case had previously suffered three miscarriages at around three months. Array-comparative genomic hybridization, also called chromosomal microarray analysis, found that there were balanced reciprocal translocations at the sixth and fourteenth chromosome (46, XY, t(6; 14) (q27; q32.12)). Such chromosomal translocations increase the chances of miscarriage significantly. The doctors discussed in detail in vitro fertilization and the embryo biopsy procedure with the couple. After understanding this

treatment approach and its chances of success and the potential risks, the couple decided to give it a try. The fertilization was successful and the pregnancy proceeded smoothly.

The embryo already has hundreds of cells at the blastula stage, and five to ten cells may safely be removed from the trophoblast, which develops into a significant part of the placenta. This type of embryo biopsy achieves a success rate of 80-95% in diagnosing disorders, whereas previous embryo biopsies were performed when the embryo had only six to eight cells and were successful only 70% of the time. Since embryos are more developed at the blastula stage, biopsies performed at this stage lead to a higher rate of implantation and pregnancy.

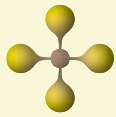
The reproductive medicine team at NTU Hospital has used array-comparative genomic hybridization

screening of embryo biopsies removed during the blastula stage to treat 20 couples. With 14 of these couples enjoying successful pregnancies, the team has reached a success rate of 70%. The genetic diseases avoided through these procedures include spinocerebellar atrophy, neurofibromatosis, muscular dystrophy, thalassemia, congenital hearing loss and hemophilia. It is predicted that the technique and diagnostic and treatment strategy used by the team will be adopted as the primary approach around the world for the detection of hereditary diseases prior to in vitro fertilization.

The reproductive medicine team has already published seven papers in international journals on the diagnosis of hereditary diseases in the fetus prior to implantation and is currently preparing to submit three new papers detailing its latest findings.

The NTU Hospital reproductive medicine team led by Prof. Yu-shih Yang poses along with one of their patients.





Gallery of NTU History Puts University's History on Display

NTU has enjoyed a remarkable 83-year history since its founding in 1928. Over these years, Taiwan has experienced many historical epochs, including the period of Japanese colonial rule, World War II, the arrival of the Republic of China government and the establishment of democracy. NTU has born witness to and played a major role in the formation of Taiwan's history over this period. The university is the primary birthplace of Taiwan's democracy movement and student movement and has produced three presidents as well as countless leaders in every sector of society. It could be said that NTU's history is Taiwan's history. The Gallery of NTU History is the university's museum of history, and as such strives to document, preserve and share the glorious history created here at NTU.

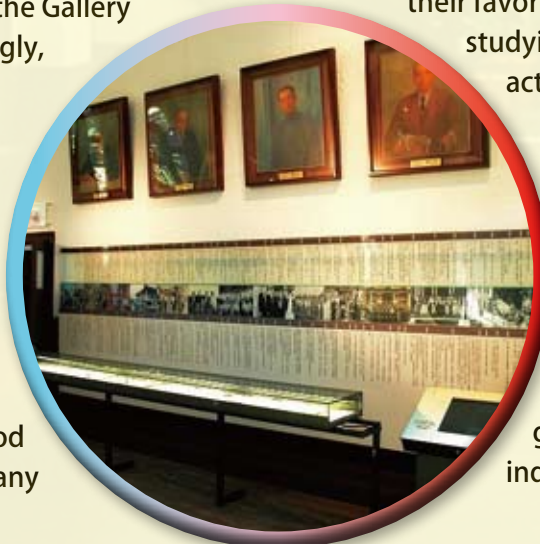
The Gallery of NTU History is housed in one of the campus' oldest buildings. Located on the north side of Royal Palm Boulevard, the building was constructed in 1929 and served as the NTU Library until 1998, when it was transferred to the College of Liberal Arts. The building finally became the Gallery of NTU History in 2004. Fittingly, the building itself has been recognized as an important part of Taiwan's history, as the Taipei City Government has designated it a Municipal Historical Site.

Among the gallery's collections are treasured photographs from each period of the university's history, many

of which were donated by alumni. The museum's second floor houses exhibitions of important historical artifacts. These include the last graduation diploma from Taihoku Imperial University, which was the university's name during the Japanese period, as well as the first graduation diploma after it was renamed NTU. Other items on display include reading lamps and study desks from the Japanese period which are still in use to this day, the course selection card of famous alumnus former Taiwanese President Lee Teng-hui, as well as records of the university's major contributions to society, such as the prevention of the spread of SARS and the investigation and reconstruction effort in the wake of the devastating 921 Earthquake.

The Gallery of NTU History also organizes special activities to explore and share the history of NTU. One fun example of this was "Life Maps of NTU Campus, Episode 1, Students in School," which ran from November 15 to February 29. This was an exhibition developed around the results of an online survey asking students to name and share stories about their favorite locations on campus for studying, dating and extracurricular activities.

The Gallery of NTU History is open to the public every day except Tuesday from 10:00 to 16:00. Also, you can take interactive virtual tours in English anytime at http://www.lib.ntu.edu.tw/gallery/04_01-online/english/index.html.



Center Hosts Bilateral “Material for Energy” Workshop with Major US Lab



CCMS Director Raynien Kwo (center in the 2nd row), Center's Research Fellows and ANL delegates pose for a group photo.



The Center for Condensed Matter Sciences hosted a bilateral workshop for materials scientists from Taiwan and Argonne National Laboratory in the United States on “Materials for Energy,” January 12-16. The workshop was designed to investigate materials solutions for applications in the developing field of energy technology and lay the groundwork for long-term collaboration between Taiwan's research community and ANL. Sponsored by Taiwan's National Science Council and NTU, the meeting drew over 200 local and international participants, marking a milestone in collaboration between ANL and Taiwan's academic community in basic sciences and energy resources.

Scientists around the globe are undertaking cutting-edge research projects focused on novel materials and applied devices in the quest for viable solutions to the urgent need for energy conservation, carbon dioxide reduction and renewable energy. ANL is at the forefront of the evolving nano-science revolution as well as the drive to understand the fundamental properties of matter, and is extending the benefits of high-performance computing in many research areas. Researchers there also lead energy resources programs aimed at creating innovative solutions to complex economic and energy issues. Eleven outstanding scientists from ANL took part in the workshop.

The workshop covered ten important topics under the two major categories of “Emergent Materials” and “Advanced Characterizations.” The topics included complex oxides, catalysis, organic photovoltaic cells, atomic layer deposition (ALD) and in-situ probes, nano-fabrication, transmission electron microscopy (TEM) microscopy, nano probe (STM), nano photonics, spintronics and Advanced Photon Source (APS) X-ray nanoprobes.

The workshop organizers arranged visits to the CCMS and other research organizations for the visiting ANL scientists while they were in Taiwan. In addition, five ANL scientists presented speeches at the 2012 Annual Meeting of the Physics Society of the Republic of China, which took place at National Chung Cheng University in Chiayi, January 17-19.

The Taiwanese participants in the workshop work at NTU and other leading Physics, Chemistry and Optoelectronics divisions at academic institutions in Taiwan. They specialize in research in emergent new materials, advanced microscopy and spectroscopy, and forward-looking devices. These scientists have accumulated world-class technical expertise in these fields, and have made great advances in

terms of academic innovation, top journal publications and citations, technology innovations, and global competitiveness.

The CCMS was established in 1992 to work at the frontiers of condensed matter research on emergent new materials, advanced characterizations of microscopy and spectroscopy, and forward-looking devices. The center has grown over the years and now employs 13 full-time research faculty members along with over ten research scholars and adjunct professors. In its search for new materials solutions for the world's energy needs, the center is currently investigating novel nano-materials for sustainable energy and oxide/semiconductor hetero-interfaces for high speed, green nano-electronics.



Research Indicates How Word Meaning is Accessed Unconsciously



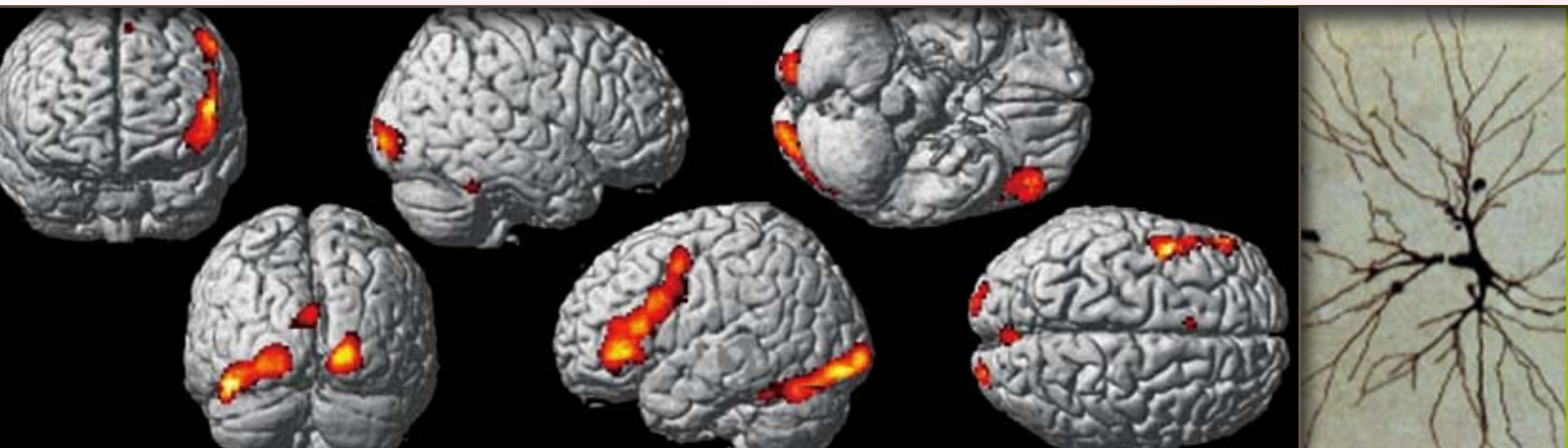
This article introduces research conducted by Prof. Su-ling Yeh of the Department of Psychology in collaboration with Prof. Sheng He at the University of Minnesota and Prof. Patrick Cavanagh at the Université Paris Descartes. The team's findings will appear in Psychological Science.

In our visual world, objects do not appear alone. For example, we see a cup by other dishes in a restaurant and a word by other words in a text. Visual crowding refers to the phenomenon that the items surrounding a visual target impair our ability to see, attend to and act upon that target, especially in the peripheral visual field. When you read this paragraph, for example, your eyes fixate on a particular word and jump from one word to another twice or three times per second. At each moment, you see clearly the fixated word while the other words on the periphery become too blurry to identify until you look directly at them. Visual crowding of the words that appear outside the fovea limits the extent of visible span and thus affects reading speed.

Yeh and her partners found that although people cannot identify a crowded word, they can still access its meaning. They used a method called “semantic priming” as an index of semantic activation of a word. For example, if a word “knife” is presented on the computer screen, followed by a semantically

related word “sword,” the second word can be read faster than a semantically unrelated word “smile.” This semantic priming effect—shorter response time for semantically related than for unrelated words—indicates that the first word activates a semantic network that includes the second word and thus the response to the second word can be “primed.” Most importantly, when the word “knife” is surrounded by other words and thus it cannot be identified due to visual crowding, processing of the second word “sword” can still be speeded up by this unrecognized word. This implies that although unavailable for conscious word recognition for a crowded word, information can still drive semantic networks in our brain, a process that may have evolved in our daily cluttered visual environment.

People usually think that we have to identify a word before we can extract its meaning. Yeh et al.’s finding overturns this generally held belief, especially in a context similar to everyday reading. The finding suggests that, rather than a hierarchical processing from word form to word meaning (i.e., identification is the prerequisite of extraction of meaning), the two may rely on different encoding systems of stimulus information. They used Chinese single-character words that are compact and carry individual meanings, which might be the key to the successful demonstration of word meaning that survives crowding. The finding of semantic activation from crowded words also challenges the dominant theories of visual crowding.



Exhibition Highlights Role of New Science in Shaping New Civilization

While new science is creating the contemporary world, it is engendering new forms of civilization. To highlight the crucial role science plays in shaping civilization, the College of Electrical Engineering and Computer Science organized the exhibition "From New Science to New Civilization."

Scheduled to coincide with the NTU Azalea Festival, the exhibition took place in the Gallery of NTU History during March 6-16. President Si-chen Lee and Dean Lin-shan Lee of the College of Electrical Engineering and Computer Science presided over the event's opening ceremony and press conference on March 6. The exhibition was widely reported in the local media and received positive reviews.

Dean Lee pointed out that the world today is far more complex than it was in the past, to the point that it has exceeded the capacity of scientists to handle it with just their brains and hands. Scientists have created this new science by ingeniously coupling their intelligence with the super powerful memory, computing, analysis, inference, precision, accuracy and performance of machines. From the minuteness of integrated circuits to the massiveness of global weather forecasts, new science has changed our lives thoroughly and in turn fostered new civilization.

The exhibition featured 25 thematic displays. One showcased an intelligent energy conserving home that followed the habits of its dwellers to reduce power consumption. Others featured a "black box" that could be implanted inside the human body to provide immediate health data and a mobile personal healthcare device that serves as a virtual physician. One poster presentation also discussed some of Taiwan's outstanding scientists and the contributions they made to the development of new science.



An amazing highlight of the exhibition was a soccer game played between robots with artificial intelligence. NTU's robot soccer team placed third in an international competition in 2011.



Mercuries Life Plants and Adopts Forest at NTU Experimental Forest



(from left to right) College of Bioresources and Agriculture Dean Shyu, Mercuries Life Chairman Liu and Experimental Forest Director Wang plant the first trees in a forest planting initiative at NTU's Experimental Forest.

On March 7, in the run-up to Arbor Day, which is celebrated on March 12 in Taiwan, Mercuries Life Insurance Co. Chairman Chung-hsing Liu joined NTU Experimental Forest Director Ya-nan Wang and College of Bioresources and Agriculture Dean Yuan-tay Shyu in planting the first trees at a ceremony held for a forest planting initiative at the Experimental Forest in Nantou County high in the mountains of central Taiwan. The forest has been planted and adopted as part of the insurance company's Green Insurance Policy environmental program, which it introduced in 2011.

The trio used the event to call on the public to do more to protect the environment. The initiative involved the planting of a total of 1,437 trees, which eventually will absorb 17,244 kilograms of carbon from the atmosphere each year.

Through its Green Insurance Policy, the insurance company is promoting a nationwide drive to cut carbon emissions by 23 million metric tons per month under the slogan Carbon Out.



Scientific Illustration Exhibition Brightens Azalea Festival with Art and Science



Scientific illustrator Gretchen Kai Halpert's work covers such fields as zoology, botany and medicine.

This year's NTU Azalea Festival was brightened by the exhibition "A Deliberate Hand--The Art of a Scientific Illustrator." Taking place on the first floor of the NTU Library, March 9-25, the exhibition featured a selection of recent works by Gretchen Kai Halpert, who draws on her background as both an artist and biologist to create works that are at once beautiful and scientifically accurate. Ms. Halpert also gave a lecture entitled, "What is Scientific Illustration," on the exhibition's opening day.

Simply speaking, scientific illustration is the use of images and explanations to help people understand science and bring life to topics that might be perceived as rigid and difficult. Scientific illustrators strive to marry to worlds of science and art, which Ms. Halpert sees as "two sides of the same coin." Like Leonardo Da Vinci, the scientific illustrator creates art in the service of science,

drawing on both an artistic eye and scientific observation.

The solo exhibition showcased botanical, medical and biological drawings and sketches demonstrating both the artist's aesthetic talent and her powers of scientific observation. On display were ten original pieces as well as a digital presentation of more than sixty scientific illustrations chosen from her collection. Many of the works were on exhibition for the first time, and the artist even created pieces specifically to celebrate the Azalea Festival.

In her lecture, Ms. Halpert expounded on works revealing her process of developing a

and digital examples. The artist/scientist provided information on professional organizations and websites as well.

Ms. Halpert is a scientist, artist and educator. After earning her bachelor's degree in Botany, she pursued a master's degree in Biological Illustration. She ultimately received a certificate in Scientific

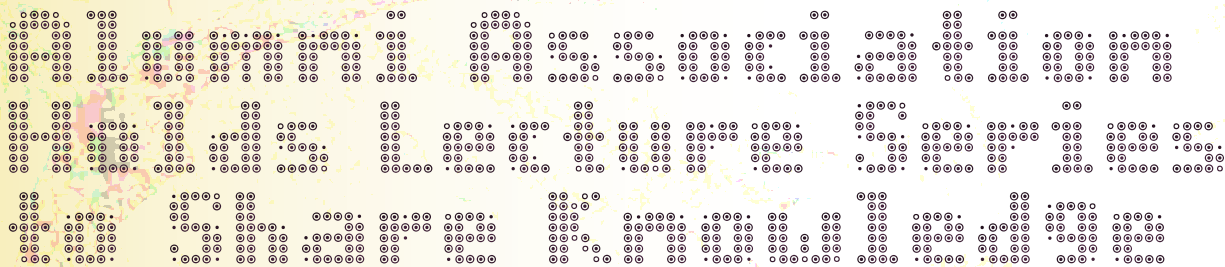


and Technical Illustration from the prestigious Rhode Island School of Design. Ms. Halpert also worked for many years as a cell and molecular biologist at Yale University and Rhode Island Hospital, both authoring and illustrating publications in the field of medical research. As an educator, she has taught at RISD and Brown University and now leads workshops in the United States and around the world. She is past-president of the Guild of Natural Science Illustrators and serves on the advisory committee of the Guild of Asian Botanical Artists.



scientific illustration from research to sketches to final product. She augmented the discussion of her methods with a PowerPoint presentation on the field of scientific illustration. The lecture highlighted the uses, significance and conventions of scientific illustration using both traditional

NTU at a Glance

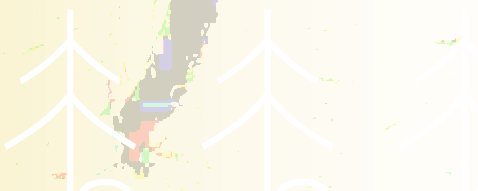


The NTU Alumni Association has been holding a series of lectures at the NTU Alumni Building from 10:00 to 12:00 on Saturday mornings in March and April. Prof. Wei-jao Chen, former NTU president and president of the alumni association, and Prof. Chen Sun, chairperson of the NTU Alumni Association Culture Foundation, organized the lecture series with the aim of giving back to society through the sharing of knowledge.

The lectures—presented by respected experts in their respective fields—fall under the four themes of “Medicine and Healthcare,” “New Technology Knowledge,” “Social Compassion” and “Loving the Humanities.” The lectures are free and everyone has been welcome to partake of this banquet of knowledge.

Among the fascinating and informative lectures presented already are “Nature is a Book,” “The Art of Food and Drink,” “The Past and Present of Reef-building Sinularia and Precious Coral,” “The Spring Grass Forever Green: What You Need to Know about Hospice Palliative Care” and “Immunity and Detoxification.” The final lecture, “An Ecological Tour of the NTU Experimental Forest,” is scheduled for April 28.

For further details, please call (02) 2321-8415, ext. 9, or visit the Alumni Association’s website at: <http://www.ntuaa.ntu.edu.tw>.





THE WORLD UNIVERSITY RANKINGS 2011-12		
POWERED BY THOMSON REUTERS		
61-70 GROUP		
REPUTATION RANK	INSTITUTION	COUNTRY
61-70	National Taiwan University	Taiwan

NTU Scores Highest World Ranking to Date

NTU scored its highest ranking to date in an international ranking of universities! The World Reputation Rankings 2012, released by the Times Higher Education World University Rankings, places NTU at a new high in its 61st to 70th group.

For its reputation rankings, the ranking firm conducts an international survey of academic opinion focused on only its top 100 ranked universities. This year's survey is the most extensive ever undertaken, garnering 17,554 survey responses from people in 137 countries.

NTU's continued rise in world university rankings demonstrates that its Aim for the Top University Project is achieving its objectives. For instance, looking back six years to the initiation of the first stage of the project, we have climbed from 183rd to 123rd in the Academic Ranking of World Universities and from 124th to 87th in the QS World University Rankings.

Stage 2 of the Aim for the Top University Project kicked off last year, and we look forward to marching into the ranks of the world's top 50 universities.



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臺北郵局許可證
臺北字第4272號

Publisher: Si-chen Lee
Editorial Consultant: Lin-lin Ku
Editor: Pei-Zen Chang
Executive Committee: NTU Secretariat
Published by National Taiwan University
Tel: 886-2-3366-3737
Address: No.1, Sec.4, Roosevelt Road, Taipei, 10617 Taiwan
Website: <http://homepage.ntu.edu.tw/~secretor/ntunewsletter>
臺灣郵政臺北雜字第1146號執照登記為雜誌交寄