

Education in Singapore

NATIONAL UNIVERSITY OF SINGAPORE | Continuing to flourish

Offering a global and an Asian approach to education

Like the celebrated Bodhi, the ancient Buddhist tree of wisdom, the National University of Singapore (NUS) continues to flourish and grow, branching off into scholarly pursuits that were unconceivable a generation ago and extending its root as one of the world's premier academic and research institutions.

"The university offers an experience that is distinctively global and Asian — a global approach to education and research with a focus on Asian perspectives and expertise," says Prof. Tan Chorh Chuan, an NUS alumnus who recently took the helm as the university's president. "NUS offers students an enriching and diverse educational experience that is shaped by a growing, diverse community comprising over 30,000 students from 100 countries."

Founded in 1905 as a modest medical school with just 23 students, NUS is consistently ranked among the world's top 35 universities by the Times Higher Education-Quacquarelli Symonds ranking and among the top 10 in Asia in the Shanghai Jiao Tong University rankings of world universities.

And the university certainly plans to keep that position for years to come given its vision statement: "Towards A Global Knowledge Enterprise: A leading global university centered in Asia, influencing the future." Influence is the key word in this case, reflecting a university that hopes to transform the way people think and do things, not just in Asia, but around the globe.

According to Prof. Tan, the university's



Prof. Tan Chorh Chuan, an NUS alumnus, recently became its president.

point of differentiation is its strategic location in the heart of Asia and a deep understanding of all things Asian.

These factors have benefited NUS in three critical areas: students with a strong appreciation of global issues, alongside Asian perspectives; a world-class faculty in strategic academic areas, with special expertise in relation to China, India and other parts of Asia; and the ability to be a magnet for talent from inside and outside Asia, as well as a preferred academic partner for those seeking collaborations in the region. "When people think of 'Asia' in terms of cut-

ting-edge research, scholarship, ideas and solutions," says Prof. Tan, "NUS must come to mind." He also feels that an NUS education offers different learning dimensions — multidisciplinary, entrepreneurial, self-directed and experiential learning. "This rich and diverse learning environment allows students the space and scope to explore their areas of interest," says Prof. Tan, "and provides pathways to stretch each student."

Collaborating with top institutes

Understanding that graduates must operate in a global environment, NUS collaborates with top institutions worldwide. Its partners extend from Duke University (Duke-NUS Graduate Medical School) to the Peabody Institute of Johns Hopkins University (Yong Siew Toh Conservatory of Music).

Additionally, NUS students can choose to enroll in any of the more than 60 joint and double-degree programs offered with leading foreign universities. By the time they finish their stint at NUS, roughly half of the graduates will have ventured overseas; 20 percent of them will have spent at least a semester abroad.

Producing high-impact, cutting-edge research is another area of focus, with the university playing pivotal roles in a number of research centers and alliances, including the nationally funded Research Centers of Excellence (RCEs), the International Alliance of Research Universities and the Association of Pacific Rim Universities. A new NUS



The university's global atmosphere is reflected in its international student body.

Global Asia Institute will be established with the aim of taking a lead role in research topics of critical importance to Asia's future.

The university's research accomplishments are already rich and diverse, including a study which determined that consuming black tea reduces the risk of Parkinson's disease in an Asia-based, non-Caucasian population.

NUS scientists have also developed insulin-producing cells from embryonic stem

cells in mice that when transplanted into diabetic mice cause the blood glucose levels of the animals to decrease.

Other NUS scientists have also developed a cabbage that can be utilized as an environmental monitor. Known as the "Baggage Cabbage," it captures information from its surroundings and reflects the data through a change of color.

Despite all these accomplishments, Prof. Tan keeps his eye on the big picture —

the task of preparing students for the rest of their lives in a changing environment.

"It's now not uncommon for people to have 10 to 15 jobs," says Prof. Tan. "So we have to change from preparing students for a career for life to a lifetime of careers."

He adds that academic training not only needs to be relevant for an immediate job but also for students to be able to develop the ability to pick up new skills and do other jobs. J.C.

PARTNERSHIPS | United they stand

Collaborating for better education

NUS has long recognized that partnerships can help extend the reach and impact of its educational offerings and research capabilities. So the university has teamed up with leading institutions worldwide to collaborate, innovate and educate. One such partnership is the International Alliance of Research Universities (IARU), which promotes the education of future leaders. In addition to NUS, the group includes Yale, University of California, Berkeley, ETH Zürich, Oxford, Cambridge and the University of Tokyo. Taking a lead role, NUS President Prof. Tan Chorh Chuan will serve as IARU chair for the next two years.

Along with other esteemed members, such as Stanford, the California Institute of Technology and Fudan University in Shanghai, NUS is also a charter member of the Association of Pacific Rim Universities. The group's aim is to be a catalyst to foster education, research and enterprise for economic, scientific and cultural advancement in nations that border the Pacific Ocean.

NUS has also forged numerous partnerships focusing on specific areas of expertise. Together with Duke University, for example, it established the Duke-NUS Graduate Medical School Singapore, which nurtures future medical leaders with unique expertise in clinical care, health care delivery and biomedical research. Duke has been able to use this agreement to diversify and accelerate its research endeavors — like the work that is currently being carried out by its cancer and stem cell biology program on how cancers affect the Asian community.

In recent years, Singapore has also invested heavily in developing into a global city for the arts, with NUS and its partners forming much of the driving force. In 2001, the



The Conservatory Orchestra conducted by Peabody faculty and pianist Leon Fleisher, the Conservatory's Ong Teng Cheong Distinguished Visiting Professor in Music 2008-09.

university signed an agreement with the Peabody Institute of Johns Hopkins University to establish the Yong Siew Toh Conservatory of Music. The Conservatory prepares students for careers in musical composition and performance. The collaboration with Peabody, which is ranked among the top music schools in the world, provides for frequent student and faculty exchanges across all departments.

"The establishment of the conservatory is part of a wide-ranging strategy to position Singapore as an Asian renaissance city of the 21st century for the arts and culture," says Dr. Tony Tan, the former deputy prime minister of Singapore. "The conservatory would also provide more opportunities at the university level for our local students to pursue their interests and develop their talents in music to the highest levels, an affirmation of the government's ability driven approach to education," says Dr. Tan, adding that the conservatory will also attract talented young musicians from the region who will contribute further to the development of

the arts in Singapore. All of this is synonymous with a new vision for the university that was announced in January.

When announcing the new mission, NUS President Tan said: "Our goal, indeed our responsibility, is to create the energizing milieu that prepares and challenges our students, faculty and staff to reach and achieve beyond themselves, to be self-surpassing. When people think of Asia in terms of cutting-edge research, scholarship, ideas and solutions — NUS must come to mind."

One resultant development is the setting up of the NUS Global Asia Institute. The proposed institute will tackle large-scale research issues ranging from the environment to the economy that are important globally as well as in Asia.

"It will conduct research that will deal with complex and interlinked questions, often beyond the scope of existing research centers," says Prof. Tan. In the area of aging, for example, research will have implications for health delivery systems, urban planning and financial security issues. J.C.

TRANSFORMATIVE EDUCATION | Multidisciplinary, entrepreneurial, self-directed

Stretching students with different learning dimensions

NUS President Prof. Tan Chorh Chuan says: "An NUS education offers different learning dimensions — multidisciplinary, entrepreneurial, self-directed and experiential learning. This rich and diverse learning environment allows students space and scope to explore their areas of interest and provides pathways to stretch each student."

This "transformative" education is currently offered to 30,000 students from about 100 countries; many of these students say that this global mix is one of the reasons they chose the Singapore university over other places of higher learning.

"At the Lee Kuan Yew School of Public Policy (LKYSPP) at NUS, I get vast opportunities to interact with students from more than 30 different countries," says Bianca-Martina Rohner, a German national, who is completing a double master's degree program in public administration from the LKYSPP and the Institut d'Etudes Politiques (Sciences Po) in Paris.

"I'm able to learn from their experiences and about their culture," she says. "This student-to-student interaction has really been an important aspect of life at the school. Studying at the LKYSPP has also provided me with the perfect opportunity to gain knowledge at a top school of public policy of global reputation, while at the same time explore a region of the world that I had been unfamiliar with. I am confident that the knowledge gained from studying at the LKYSPP can be applied anywhere in the world."

For at least half of all undergraduate students, an NUS education includes a stint overseas, with two out of every 10 spending a semester or more abroad. "This is achieved through summer programs, field trips, the NUS Overseas Colleges or student exchange programs," explains Professor Tan, who adds that students also have the opportunity to enroll in more than 60 joint and double degree programs with other universities.

During her third year at NUS, Soh did an internship with a start-up company in Shanghai while pursuing courses at Fudan University. While studying at NUS, she launched her own technology start-up (Dream Axis) and recently opened a Beijing office for her company. Giving back to the program that gave her so much, Soh is currently mentoring a student participating in the NUS Overseas Colleges program in her Beijing office.

"The university aims to develop global citizens who would thrive in diverse and challenging environments," says Professor Tan. "They are Singapore's future leaders and will play a key role in the nation's economic and social transformation, its continued growth and competitiveness."

As if to say the proof is in the pudding, Prof. Tan points to prominent alumni. "As Singapore's oldest university, NUS has had, and continues to have, the privilege of nurturing generations of men and women who have gone on to make an impact in the country and overseas."

Past students of the university and its predecessor institutions include Singapore's Minister Mentor Lee Kuan Yew and Senior Minister Goh Chok Tong, Ambassador-at-Large Professor Tommy Koh, and the former ambassador to the United States and former president of the United Nations Security Council, Professor Kishore Mahbubani. Professor Mahbubani is also founding dean of the Lee Kuan Yew School of Public Policy at NUS. J.C.



Bianca-Martina Rohner (above left), a German national, is completing a double master's degree in public administration. Winne Soh is a recent graduate of the NUS School of Computing.



RESEARCH | A prime goal for Singapore

Research is a national priority

It's no secret that high-impact research has long been one of Singapore's primary nation-building goals. The research thrust at NUS is one of the primary engines to realize that ambition.

"Human resources were, from its moment of statehood, central to Singapore's survival and development," says Professor Wang Gungwu, chairman of the East Asian Institute at NUS. "Attention to education and talent was focused, and making NUS the platform for producing quality graduates with the best possible research skills ultimately became a national priority."

The numbers say it all. NUS has more than 20 university-level, 16 national-level and more than 80 faculty-based research institutes and centers. Each year, they carry out more than 1,700 research projects (winning, on average, around 100 research awards) and play host to at least a hundred symposiums and conferences. Last year alone, NUS staff produced more than 2,400 conference papers, filed 43 patents and had 11 patents granted.

In keeping with Singapore's overall research objectives, key focus areas for research at NUS include biomedical and life sciences, physical sciences and engineering, humanities and social sciences. It also conducts research in other areas of strategic importance to the nation; these include environment and water technology, maritime research and transportation, and defense-related research.

In addition, three of the four nationally funded Research Centers of Excellence (RCEs) in Singapore are based at NUS. These include the Center for Quantum Technologies, the Cancer Science Institute of Singapore and the Mechanobiology RCE. "These centers are headed by world-renowned researchers, with government

funding of over \$100 million each," says Prof. Tan Chorh Chuan, president of NUS.

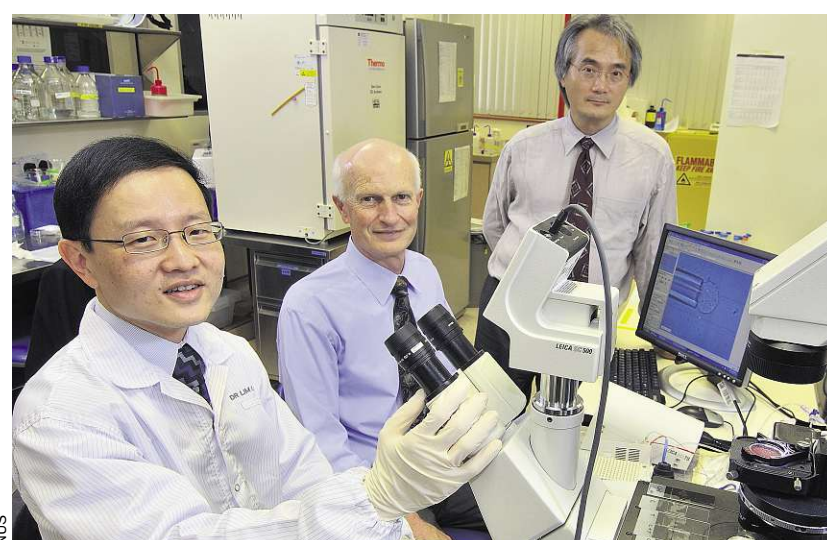
Professor Michael Sheetz, director of the Mechanobiology RCE at NUS and The William R Kenan Jr. Professor of the Department of Biological Sciences at Columbia University, says: "The elements are in place to support outstanding research in Singapore. They have taken the view that they will support investment in the long-term growth of the basic science, which is refreshing in a time when many countries are focused on the short-term translation of science to the bedside. As was recently mentioned by Dr. Torsten Wiesel [a Nobel laureate], without advances in basic science, there is nothing to translate."

Professor Sheetz says he does not know of anywhere else in the world that can match Singapore's quest to attract top researchers and scientists.

NUS is also involved in the arts. Three years ago, the NUS Hollywood Lab was created in Los Angeles to encourage international research-and-development collaboration and technology commercialization of interactive and digital media. Newton Lee, formerly of the Walt Disney Company, heads the lab.

"Next-generation computer gaming is a major focus for the NUS Hollywood Lab," says Lee. As an example, he cites the collaboration between NUS Associate Professor Adrian David Cheok and Professor Scott Fisher at the University of Southern California on mixed-reality entertainment. NUS Hollywood Lab works closely with industry partners such as Walt Disney Imagineering, Fox Interactive Media and NBC Universal, as well as university partners including Harvard and the University of California, Los Angeles.

Many other exciting research programs are on the drawing board. One example is a



Prof. Michael Sheetz (center), is flanked by Prof. Chwee-Teck Lim (left) and Prof. Paul Matsudaira, co-director of the Mechanobiology RCE at NUS.

residential college nucleus called University Town, which will be ready for occupation next year. It will house the Campus for Research Excellence and Technological Enterprise (CREATE) program as well as the Asia Research Institute.

A complex of research centers launched in collaboration with universities and research labs from around the world, CREATE hopes to entice "the cream of the crop" to work alongside Singaporeans in areas deemed important to Singapore's interests, while allowing NUS students to interact and engage with some of the world's top minds. The Massachusetts Institute of Technology (MIT) is the first to set up a research center within CREATE.

Infectious diseases, environmental sensing and modeling, and healthcare technologies will be the main focuses of the Singapore-MIT Alliance for Research and Technology (SMART) Center. "The SMART Center will offer participants from MIT and

Singapore unique opportunities to advance research agendas that will shape the development of science and technology in the coming decades," says Professor Susan Hockfield, president of MIT. "It also represents a new way for MIT to engage in research on topics of great societal importance and presents new mechanisms for MIT's engagement in this important region of the world."

The university is keenly aware that all of this research must someday make the leap from classroom and laboratory to real-world applications. "NUS has also had great success in commercializing its research and developing entrepreneurship activities at our university," says Prof. Tan.

"NUS Enterprise, the university's entrepreneurial arm, develops and nurtures entrepreneurship in our students and researchers and enables them to start up their own companies."

J.C.

VIEWPOINT | Wang Gungwu, chairman of East Asian Institute

Asian perspectives: Professor and historian of China gives his insights

One of the world's leading authorities on Chinese studies, Professor Wang Gungwu is chairman of the East Asian Institute.

On June 12, he was awarded an honorary doctorate of letters by the University of Cambridge for his contributions as a historian of China and the Chinese. The Indonesia-born Wang, a former vice chancellor at the University of Hong Kong, is the first historian of Chinese descent to receive an honorary doctorate from Cambridge.

Why is NUS one of the best places in the world to undertake high-impact research with an Asian perspective?

The university has taken full advantage of its unique position: Singapore's history and peoples are connected to great Asian civilizations and it is located in the most dynamic growth region in the world today.

Why did you decide to further your work at NUS rather than somewhere else in the region?

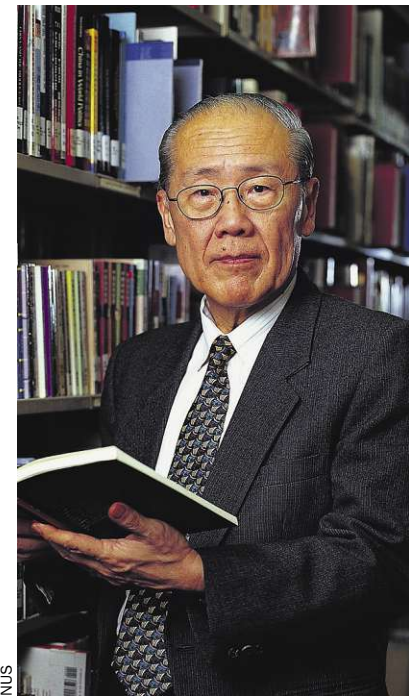
I was asked to build up NUS's East Asian Institute and, in particular, foster research on China and its remarkable efforts to reinvent itself in modern times. Nowhere in Southeast Asia was this being done in any systematic way, and nowhere were the region's perspectives on China being fully explored.

I thought this was something important to do, and it was also a subject that interested me very much.

What does an honorary doctorate from Cambridge mean to you and to the field of Chinese history?

An honorary doctorate of letters in recognition of the work of a historian of China makes me feel humble.

For a university that is celebrating its



Says Wang: "Singapore's history and peoples are connected to great Asian civilizations."

800th anniversary to place the field in a prominent position also shows that China has returned to the forefront of world history.

This matches the fresh emphasis on the study of China in the Western world — something essential if we believe that understanding the past could enrich the human condition and will help make the future a little more predictable and secure.

J.C.