



香港大學

THE UNIVERSITY OF HONG KONG



# ANNUAL REPORT 2021

SETTING SAIL | MAKING WAVES  
LEADING THE WAY



# VISION

The University of Hong Kong, Asia's Global University, delivers impact through internationalisation, innovation and interdisciplinarity. It attracts and nurtures global scholars through excellence in research, teaching and learning, and knowledge exchange. It makes a positive social contribution through global presence, regional significance and engagement with the rest of China.

# MISSION

The University of Hong Kong will endeavour:

- To advance constantly the bounds of scholarship, building upon its proud traditions and strengths
- To provide a comprehensive education, benchmarked against the highest international standards, designed to develop fully the intellectual and personal strengths of its students, while extending lifelong learning opportunities for the community
- To produce graduates of distinction committed to academic / professional excellence, critical intellectual inquiry and lifelong learning, who are communicative and innovative, ethically and culturally aware, and capable of tackling the unfamiliar with confidence
- To develop a collegial, flexible, pluralistic and supportive intellectual environment that inspires and attracts, retains and nurtures scholars, students and staff of the highest calibre in a culture that fosters creativity, learning and freedom of thought, enquiry and expression
- To provide a safe, healthy and sustainable workplace to support and advance teaching, learning and research at the University
- To engage in innovative, high-impact and leading-edge research within and across disciplines
- To be fully accountable for the effective management of public and private resources bestowed upon the institution and act in partnership with the community over the generation, dissemination and application of knowledge
- To serve as a focal point of intellectual and academic endeavour in Hong Kong, China and Asia and act as a gateway and forum for scholarship with the rest of the world

# CONTENTS

Message from the President and Vice-Chancellor <b>READY TO LAUNCH</b>	02
Teaching and Learning <b>BACK TO THE FUTURE</b>	08
Research and Innovation <b>RAISING THE BAR</b>	18
Knowledge Exchange and Technology Transfer <b>GROWING OUR IMPACT</b>	30
The University Profile	40
An Extract from the University's Annual Accounts 2020–21	49
Officers of the University	52
The Court	53



# READY *to* LAUNCH

The image of a boat setting sail evokes thoughts of new journeys, fresh horizons, promise and potential. Over the past three years, I have had the great privilege of preparing HKU to lift its sails and venture forth – to dream big and build momentum in its quest towards excellence. Our destination is to be a global leader making impact in Hong Kong, China and the world. Like any major undertaking, there have been challenges and crises, but the University has demonstrated that it has the strengths and determination to move beyond these. 2020–21 has seen us pass important milestones on our journey.





## Teaching and Research in 2020-21: Embarking from a Position of Strength

First, it was very pleasing to see the University sustain its existing strengths given the restrictions of COVID-19 that have been felt around the world. We attracted the most top scorers in the Hong Kong Diploma of Secondary Education Examination (HKDSE) of all Hong Kong universities (admitting 76 candidates who scored 5\*\* in four or more core subjects), as well as strong candidates from Mainland China and overseas. I also took great pride in our students' sporting achievements at this year's Tokyo Olympics, where three current students and two alumni represented Hong Kong.

Our teachers kept up their high standards and ensured students fulfilled curriculum requirements, despite having to adapt to the online environment. After much careful preparation and due consideration to health and safety, the University was able to resume mostly face-to-face learning in September 2021. This has energised everyone. Being on campus and interacting in person is essential to students' learning and personal development, and it makes teaching and learning immensely more enjoyable. It is also the preference of both staff and students. Having said that, we will continue to explore the use of technology to enrich learning and take it in new directions.

Honours came in for both teaching and research achievements during the year. HKU won the University Grants Committee's 2021 Teaching Awards for general faculty members and teams, while 31 researchers were named by Clarivate as being among the most highly cited scholars in their fields in the world. Our researchers also received numerous international and national honours for outstanding work, as described in the Research and Innovation chapter.

Most importantly, the high quality of our research output across the University was endorsed in the Research Grants Council's Research Assessment Exercise, which is held every five years. Some 75% of our research output was deemed internationally excellent or world-leading – a fantastic increase on previous performance when 50% of output met this bar. We also had the highest proportion of world-leading research of all universities. Our performance in local competitive funding exercises also continued to be the best in Hong Kong, while we secured the most projects under InnoHK where we lead nine laboratories receiving more than HK\$3 billion in total.

These are strong foundations. However, I believe we have the potential to reach far greater heights. HKU is facing a wave of exceptional opportunities and fierce competition from others around the region, and we need to act quickly to sustain and advance our position. My team and I have taken on that challenge with a vision that asks everyone from professors and students to managers and support staff: how can we do better?

“

Campus development has been a major focus of activity from the beginning of my tenure and I am pleased to report that we are making excellent progress. Over the coming five years, a number of new developments will reach completion.

”





Adding Ballast:  
Recruiting the Best for All

In order to pivot quickly to new opportunities, raise the bar and achieve our highest ambitions, we need more talent and space – more room to grow and more people to help us get there.

Starting last year, we launched a drive to recruit the world’s best scholars to HKU. Their presence will augment the work of our existing strong team of researchers, as well as stimulate them with new ideas and new visions of greatness – and encourage them to reach for the stars. The HKU Global Professoriate Recruitment Campaign has been recruiting world-leading researchers from other world-renowned universities. We also have recent schemes to recruit 100 each of outstanding young professors, postdoctoral fellows and PhD students, and we are participating in the government’s Global STEM Professorship Scheme where we secured nearly one-third of available positions in the first round (15 of 46 positions).

The presence of more top-flight scholars will imbue HKU with advantages that resonate across the University. They will bring in more research funding, which will grow the pie of resources. They will also lift the visibility and international profile of the University as a whole. This is a win-win situation that promises to enrich all of our scholars and students with new opportunities and growth.

Getting HKU Shipshape:  
Building Bigger, Serving Better

Our plans cannot be achieved without upgrading and expanding our campus facilities, which are small, cramped, and inadequate to meet the challenges of 21<sup>st</sup> century research and teaching. Campus development has been a major focus of activity from the beginning of my tenure and I am pleased to report that we are making excellent progress. Over the coming five years, a number of new developments will reach completion: the Tech Landmark, which will house 10 interdisciplinary institutes and the new International Innovation Centre to cultivate future talent; new research and teaching blocks under the Li Ka Shing Faculty of Medicine; the Pokfield Campus with a home for the HKU Business School, residences for scholars, and conference and other facilities; four new student residential developments; and advanced sports facilities.

Alongside these new constructions, we are modernising and enhancing the efficiency and performance of our

Professor Zhang and students at the HKU Mentorship Inauguration Ceremony 2021 held in Loke Yew Hall where mentors and mentees had an enjoyable first encounter.

operations and support services. This means improving digital platforms, ensuring we have the capabilities to make data-driven decisions, and strengthening our culture of service. The We Serve programme, as it has been named, aims to make it simpler and more straightforward to handle administrative matters and to enhance the quality of working life for everyone on campus. This will make us more fit for purpose and give us a sturdier springboard for engagement with the region, which is also about to be stepped up.

Full Steam Ahead to the  
Greater Bay Area

To enhance HKU’s footprint on the Mainland and leverage on the Greater Bay Area (GBA)’s development potential for technology and innovation, the University has been stepping up its outreach in recent years, with some of our teaching programmes establishing a presence in places such as Beijing and Shanghai, our scholars regularly collaborating on research projects with their Mainland peers and our medical faculty managing the HKU-Shenzhen Hospital. The signing of a Memorandum of Understanding to establish an entire new campus in Shenzhen will strengthen these efforts and enable us to play a leading and contributing role to the development of Hong Kong, China and this region of the world as a whole.

The campus will be located in Shi Bi Long of the Nanshan district and be built in phases. HKU and the Shenzhen government have established a joint steering group to work out details, with the goal of bringing HKU’s model as a world-class comprehensive research-led university deeper into the GBA to nurture talents and research. This is important to HKU’s own ambitions, too, because we are limited by space constraints. Even with our considerable building development plans within Hong Kong, the University would remain quite small. We need to grow in order to flourish.



Message from the  
President and Vice-Chancellor

Professor Zhang witnessed HKU’s historic victory in the University Sports Federation Men’s Soccer Championship.



Professor Zhang visited St. John’s College and mingled with undergraduates and postgraduates at the Common Room. He was also presented with an antithetical couplet composed and calligraphed by two St. Johnians.

A campus in Shenzhen presents opportunities to engage in larger-scale research, conduct medical research and education with a larger, more varied patient population, bring our top-tier teaching and curriculum to more students, and bring us closer to industry partners in Shenzhen to translate our upstream original research into applications that are useful to the world. These opportunities are unprecedented and promise to benefit the University and Hong Kong.

Sailing Past Distractions to  
New Horizons

Amidst this impressive pace of progress, I have continued to reach out to students and staff to engage them in our ambitious plans and reaffirm our values. I engaged with students and visited halls and sporting events to keep our channels of communication open and convey to them the very bright prospects of our shared future. On academic freedom, I have also sought to reassure staff and students that while we must all act within the law, the University remains committed to that principle. The pursuit of knowledge and wisdom must continue, as must dialogues that are civilised and respectful of each other’s opinions. These messages are essential to my vision for HKU and they also serve us in meeting the challenges facing all of society in the 2020s.

The theme of this message is about setting sail and venturing forth. Our sights are on the horizon and the

opportunities that lie there, but we are also conscious of the need to navigate obstacles and not get anchored down by the polarisation of views that affects many places in the world today. I believe the best way to do that, and to have people listen to and respect us, is by demonstrating our excellence in everything we do. Fortunately, as this *Annual Report* shows, we are making steady progress in that direction.

My three years as President of HKU have been spent bringing the University to the point of lifting its sails ever higher and setting off to new destinations. I am extremely fortunate to be ably supported by my management team and all colleagues across the University. As we prepare to celebrate our 111<sup>th</sup> anniversary next year – the triple ‘1’ has an auspicious ring to it – I am delighted to confirm that I will serve another five-year term beyond the current one and continue to steer HKU to new horizons that will sustain the University’s excellence for decades to come.

Professor Xiang Zhang

President and Vice-Chancellor  
December 2021



# HUI OI-CHOW SCIENCE BUILDING

Teaching and Learning

## BACK TO THE FUTURE

The University continued to attract top-scoring students from around the world and reaffirmed its educational principles, as it moved past the challenges of the past two years to resume face-to-face learning, expand programme offerings and press ahead with the expansion of learning spaces and student residences.

Following two years of mainly online teaching and learning, HKU has almost entirely resumed face-to-face classes in the 2021–22 academic year.



The disruptions caused by the social movement and the COVID-19 pandemic have been a trial for teaching and learning over the past two years. But the University has emerged with a strongly affirmative message: we returned to nearly full face-to-face learning in September 2021, while drawing on the experiences of online learning to enhance our teaching. We have also reaffirmed our core educational values after wide-ranging consultations and will continue to pivot the curriculum towards innovation, interdisciplinarity, internationalism and the opportunities of the Greater Bay Area (GBA).



From September 2021, most students are back attending classes on campus, in rooms filled to only 75% capacity as an ongoing social distancing precaution.

## Returning to Campus

HKU's teaching staff made enormous efforts and adaptations over the past two years to ensure students could continue to fulfil graduation requirements, even in hands-on clinical programmes. Teachers have been ably supported by the Centre for the Enhancement of Teaching and Learning, which has supported course re-design and helped staff navigate new pedagogies and tools for online and hybrid teaching, and the Technology-Enriched Learning Initiative, which has developed new teaching tools. Technological innovation has been a major focus of this work, but at the same time it has made one thing resoundingly clear: technology cannot replace the rich experiences and personal development of in-person encounters.

Surveys of both teachers and students have found overwhelming support for face-to-face learning, which the University endorses. From September 2021, arrangements have been made for 75% capacity in classrooms, while still giving highest priority to health and safety. Student enrichment activities are also moving offline. Although virtual exchanges were held with some partners during 2020–21, we plan to return to in-person exchanges in 2021–22 as far as possible and to send and receive about 1,500–2,000 students in total. We will continue to explore the use of virtual engagement, for instance in enabling more students to interact with their counterparts in less-privileged parts of the world, but it will not be a replacement for the advantages of being physically immersed in another place and culture.

## Top Students Continue to Choose HKU

The University's success in providing a rigorous, value-added education even during the pandemic has sustained our ability to attract outstanding students. Students were admitted from more than 40 countries and among them were more than 100 top scorers of qualifications such as the Hong Kong Diploma of Secondary Education Examination (HKDSE), IB, *Gaokao*, GCE A-levels and national examinations.

To recognise and support high achievers, the HKDSE Top 1% Scholarship was launched, offering at least HK\$50,000 to new students who score among the top 1% in the HKDSE; 115 students were eligible. The University encourages students to pursue their dreams in different disciplines by giving out generous scholarships. The President's Scholars admitted in 2021 have chosen such areas of study as architecture, arts, business, dentistry, engineering, law, medicine and social sciences. A new Direct Admission Scheme for Top Athletes was also announced and will start to admit students to selected academic programmes mainly based on sporting achievement from 2022–23.

## Supporting Students' Development

To welcome new students, the Co-Curricular Support Office was established in summer 2021 to provide administrative support for student clubs and societies in organising orientation and induction activities in conjunction with the Centre of Development and Resources for Students. The latter also continued to organise the inauguration ceremony, non-academic induction talks (held online) and orientation sessions for non-local students, as well as a wide range of support services, such as psychological counselling and a virtual job fair that attracted more than 140 companies and organisations offering well over 2,000 vacancies. To provide new graduates with options during uncertain times, the



HKU offers scholarships to outstanding student athletes admitted through the Sports Scholarship Scheme.



Last year's Inauguration Ceremony for New Students was held online due to the pandemic. This year, the ceremony returned to the Grand Hall and first-year students were able to attend – and be welcomed to the University – in person.

University extended the Taught Postgraduate Scholarship Scheme and HKU Graduate Internship Programme.

Enrichment activities have also continued through outings around Hong Kong and, as mentioned, virtual exchanges. The Common Core supports a range of interdisciplinary virtual student exchange projects in Europe, the UK, and Australasia. It also, through its TransDisciplinary Undergraduate Research Initiative, continues to provide a structured format for all students to step beyond their disciplines into guided inquiry, which aligns with the wider goal of expanding research across the curriculum as supported in our 2020–21 review of teaching and learning.

## Our Educational Values Reaffirmed

That overarching review involved input from more than 550 teaching staff and more than 1,000 students and recent graduates, and drew on the lessons learned during COVID-19 to create a teaching and learning strategy for 2021–28. The strategy, approved by the Senate in July, reaffirms the soundness of our core educational aims: critical intellectual inquiry, tackling unfamiliar situations and ill-defined problems, critical self-reflection, understanding and respecting cultural differences, effective communication and collaboration, and leadership and advocacy for a better world.

At the same time, new elements have been moved to the forefront to support the University's wider vision of innovation and impact. In addition to undergraduate research, these include interdisciplinarity and cosmopolitanism (for example, having an international

element in capstone projects). The strategy also recognises that some aspects of online learning are here to stay as we explore the possibilities of changing up and enhancing classroom learning.

## New Ways to Contribute to the Future of Hong Kong and the GBA

As well as nailing down our educational principles, we have been developing new data-driven undergraduate programmes to meet the needs of Hong Kong and the GBA as they develop into an innovation hub. The new Bachelor of Engineering in Data Science and Engineering, Bachelor of Arts in Humanities and Digital Technologies, Bachelor of Science in Bioinformatics, Bachelor of Business Administration in Business Analytics, and Bachelor of Science in Marketing Analytics and Technology will produce graduates who are adept at applying AI and data to a wide variety of issues and challenges.

New teaching and student facilities are also being developed to accommodate growing enrolments. Learning spaces are being added at Pokfield Road and the medical campus, and new student residences are under construction. In the longer term, the new Shenzhen campus, announced in 2021, will enable students to engage more directly with the burgeoning opportunities of the GBA.

COVID-19 may have restricted learning opportunities in the short term, but it has also accelerated innovation and underscored the value of our educational mission. Teaching and learning at HKU is emerging stronger from this difficult test of our will and commitment.

**100+**  
TOP SCORERS

Top scorers achieved the highest results in the Hong Kong Diploma of Secondary Education Examination (HKDSE), IB, GCE A-levels, *Gaokao* and national examinations.



**40+**  
NATIONALITIES

Students admitted to HKU have come from places as diverse as Brazil, Denmark, Iran, Kyrgyzstan, Mauritius, Panama, Spain and Turkey.





# CLINICAL TRIALS

COVID-19 created a huge challenge for disciplines that require students to have contact with patients. Teachers found creative solutions that met curriculum demands and opened new avenues for engagement.

## Dental Students Get Back in Touch with Patients

The dilemma of balancing safety with professional training has been a major concern for dentistry, which was deemed to have the highest COVID-19 occupational risk by the US Department of Labour. “About 80 per cent of our teaching is clinical and cannot be taught online,” said Professor Thomas Flemmig, Dean of Dentistry and Kingboard Professor in Advanced Dentistry. “But in dentistry we have procedures, such as drilling, that create this blast of aerosols.” When in-person teaching was halted across the University in early 2020, the Faculty of Dentistry immediately went to work finding a feasible way to get students back into the clinic.

Following much consultation with staff and students, a set of safety measures was arrived at to allow students to start treating patients in person from May 2020. This included mandatory SARS-CoV-2 testing for all students

and staff, enhanced infection control through increased spacing in clinics and additional personal protective equipment, and input from the Faculty of Engineering on the best extra-oral suction devices for reducing aerosols (the chosen device reduces them by about 90%). An additional daily clinic was added, as were summer sessions, to increase capacity given the reduced number of patients per clinic.

As a result, students have been able to acquire and demonstrate the required competencies to graduate, albeit with a few extra months of study. “Our graduates need to be competent clinicians who can perform invasive, irreversible procedures – drill and fill – on live patients,” Professor Flemmig said. “The measures we have introduced have allowed us to have stable patient care and clinical teaching, even during waves of the pandemic.”

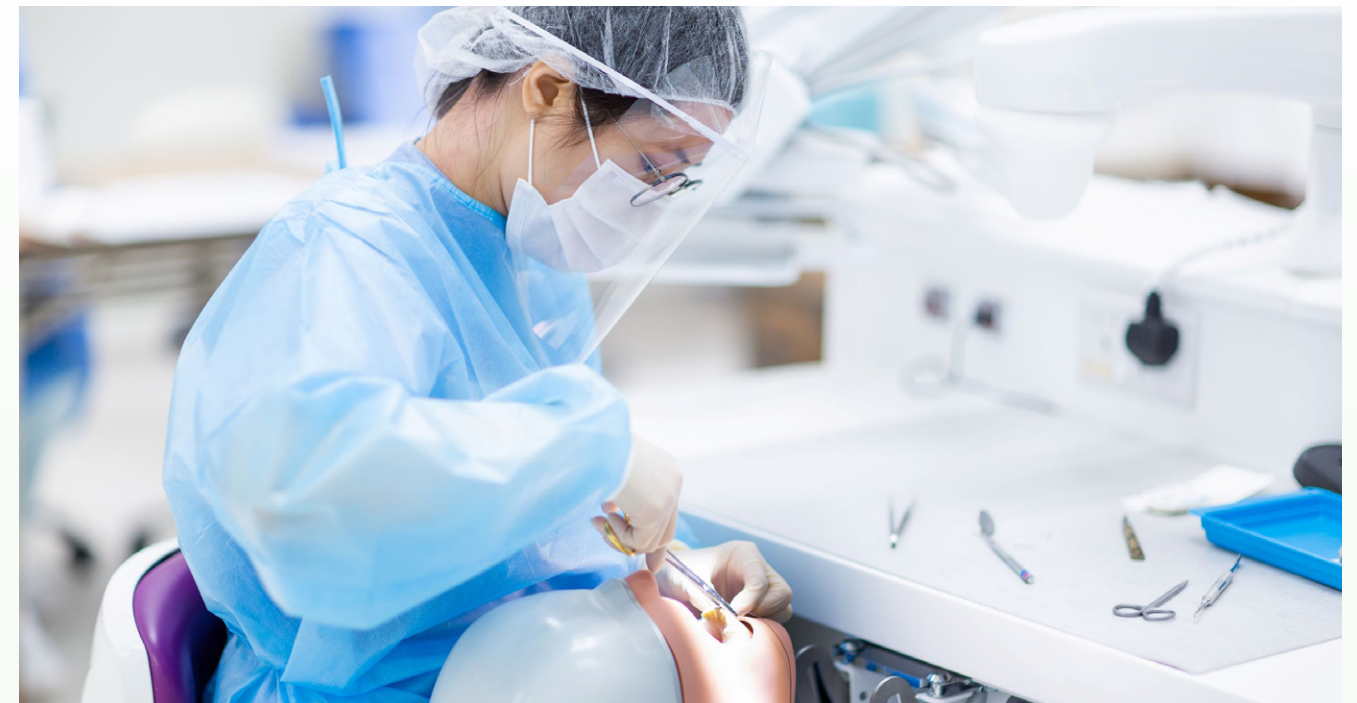
## Tech Solutions for the Medical Faculty

The medical and nursing programmes used technology to ensure their students continued to be exposed to real patient scenarios during COVID-19 restrictions.

The School of Nursing, for instance, drew on its earlier experience with technologies such as a simulation laboratory, immersive virtual reality, high-fidelity simulation and robotics, and increased their use in clinical teaching and learning. Students were provided with high- and mid-fidelity simulated activities in a ward-like laboratory, and virtual simulation involving virtual patients with pre-set vital signs and scenarios. Technology was also used for clinical assessment of 188 final-year nursing students who, in place of face-to-face sessions, performed virtual care, engaged in self-reflection and considered how to apply their new learning in practice. A study by the School found that students using these technologies developed similar clinical competencies and reported greater satisfaction and self-confidence compared with traditional simulation. The School’s success in using all these technologies won the University’s 2020 Teaching Innovation Award, which was bestowed in March 2021.



*Nursing students taking part in simulated activities in a laboratory setting that resembles an actual ward.*



*Dental students are required to wear personal protective equipment (PPE) and face shields in the Simulation Laboratory even if they are not treating real patients.*

“Simulation education can never completely mirror the value of clinical practicum in hospital wards, but it meant we could provide a safe platform for students to learn professional skills and procedures,” said Dr Veronica Lam Suk-fun of the School.

The MBBS programme also deployed technology and supervised teleconsultations, and is now developing telemedicine to be a permanent feature of the Family Medicine rotation. “The principles central to physician-patient relationships still apply to telemedicine: students are held to the same standards, responsibilities, ethical considerations and the like, whether they see patients via teleconsultation or in person,” said Dr Anderson Tsang Chun-on, who has spearheaded the telemedicine initiative.

## Speech Therapy through Zoom

Teleclinics have helped get speech and hearing sciences students over the COVID-19 hump and uncovered unexpected benefits.

Their adoption predated the pandemic, when trials of teleclinics began in summer 2019 to see if they could be used to reach patients in remote areas. This was quickly scaled up in 2020 to enable students to consult with patients over Zoom. Some patients were found to prefer this approach, particularly those with mobility issues due to Parkinson’s Disease and stroke, while others required adaptations. For young children, parents were trained to help support treatment delivered through Zoom, while for

elderly patients with dementia, a clinical supervisor sat next to and supported patients in the nursing home while students conducted the online therapy sessions.

“This form of teleclinic meant students could get exposure to different institutional settings and other healthcare professionals, which was similar to the clinical experience they had before COVID-19,” said Associate Professor Dr Karen MK Chan, who leads the teleclinic team.

The teleclinic arrangements were originally intended to be temporary but the outcome has been so positive that preparations are now underway to make them a regular part of the speech therapy curriculum and develop more materials specifically for teleclinic use. Dr Chan and her team will also explore the possibility of administering teleclinics outside Hong Kong.



*Students watching a teleclinic session of an on-site clinical educator with a patient in an old age home.*



# ENGAGING WITH THE WORLD

The pandemic may have put a halt to exchanges outside Hong Kong, but it has not prevented the University from finding other ways for students to have enriching activities beyond the classroom.

## Going on a Virtual Exchange

Exchanges outside Hong Kong were severely disrupted in 2020 and much of 2021 due to COVID-19 lockdowns. So HKU and about 50 of our partner institutions decided to try another route to bring students to new environments, through virtual exchanges.

The situation required adaptations – credits were awarded only pass / fail grades, it was difficult to accommodate STEM courses requiring lab work, and time differences made it challenging for some students to participate in tutorial groups. Still, 159 HKU students participated in the exchanges and the University welcomed 79 students from outside Hong Kong.

“Our principle was to not hinder final-year students who need an overseas experience to fulfil graduation requirements. The University accepted the virtual programme to replace the in-person programme of before,” said Ms Iris Ip, programme manager of the International Affairs Office.

Krisya Louie, a Bachelor of Social Sciences student, did a full-year virtual exchange with the University of Chicago that was originally meant to be in person. “I didn’t

want to give up the opportunity to learn from some of the brightest minds in psychology, so I continued with the exchange,” she said – and despite a schedule that often ended after 3am given time differences, she found the experience enriching. In addition to classes and interactions with leading scholars, she also participated in a virtual palaeontology expedition to Greenland and met up online with exchange students from around the world. “The intense pacing pushed me to learn a lot in a short time frame. It was an exciting challenge and I felt I learned a lot more about myself and what I was capable of.”

In-person exchanges remain the ideal, though, and are resuming in 2021–22. One of those participating is Ms Louie, who is now in her fourth year and a visiting scholar at Oxford University.

## Creative Approaches to Teaching Archaeology

A planned expedition for undergraduate students to conduct archaeological fieldwork in the South Caucasus moved online and into the Hong Kong community in the wake of COVID-19.

The expedition was part of the new Bachelor of Education course Cultural Heritage and Information in the Field that was launched in summer 2020 by Dr Peter J Cobb in partnership with the Institute of Archaeology and Ethnography at the National Academy of Sciences of Armenia. They had to quickly adapt to the reality that an overseas trip was out of the question. “There were two main topics – dealing with the cultural heritage, i.e., the archaeology itself, and also dealing with the information science aspect of fieldwork – digital methods. The second aspect was quite straightforward to carry out without travel, but we also found creative ways to teach students about cultural heritage,” Dr Cobb said.



A visit to the Sha Lo Tung historical village, guided by Maxime Decaudin, Assistant Lecturer from the Division of Landscape Architecture. Students carried out mapping activities while making observations about irrigation, farmland, forests, and architecture in the local landscape.



Students acting like they had been transported to the Vedi Fortress in Armenia, while actually being at the HKU Main Library and taken on a virtual reality tour of the archaeological site by Dr Peter J Cobb.

In 2020, students worked with their counterparts from Armenia and other students from the University of Pennsylvania on tasks such as 3D modelling and creating ceramics databases. Research posters that they produced were accepted to the Archaeological Institute of America’s annual meeting in January 2021.

One of the poster creators was Ms Agnes Sung Pui-ye, a biochemistry major, who became a teaching assistant to the course in summer 2021. The 2021 intake worked online, too, but this time students were taken on field trips to Hong Kong cultural heritage sites to gain hands-on experience in the physical processes of archaeology. “This course has made me reconsider my interests, passion and strengths,” said Ms Sung, who has decided to become an archaeologist.

Dr Cobb said that while students had enjoyed learning the new digital technologies and the Hong Kong field trips, he hoped they could get back to their original goal in 2022: taking students to Armenia.

## There’s No Place Like Home

Until the pandemic, HKU sent planeloads of students abroad every year for anything from one week to a full year to study, do service learning and undertake internships. When travel was put on hold, the HKU Horizons Office sought out broadening experiences within Hong Kong itself.

## Teaching and Learning

In collaboration with the School of Chinese and external partners, four programmes were organised on heritage-rich Lantau Island in 2021, focussing on religious diversity, cultural heritage and rituals, art and art creation, and the natural environment. Students visited monasteries and churches, participated in the Dragon Boat Festival and races, visited historic buildings, talked with artists and did outdoor sketching, and went on hikes, dolphin-watching and birdwatching. Another programme took students sailing around Hong Kong Island to learn about Hong Kong’s seafaring history, as well as basic navigation and sailing techniques. Each programme was limited to 12 participants under pandemic restrictions.

“The students were very positive about the experiences. For instance, although the majority were from Hong Kong and had been to Tai O [on Lantau], they knew nothing about what we showed them. It was an opportunity for them to join in local activities and talk to local people. They also conducted surveys in Tai O to help local people and helped make signage posts,” said Dr Parry Leung of HKU Horizons Office.

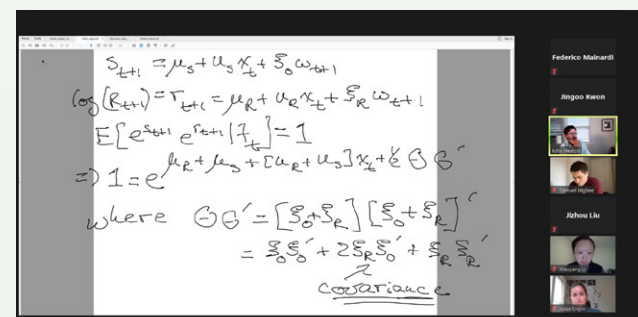
He added that the programmes will be continued and consideration is being given to how to make them more structured and in-depth. Dr Hayson Liu Shun-hei of the School of Chinese sees much possibility. “Cross-border travelling is not necessarily about visiting a foreign country. By studying our own history and contemplating our mind, we could continue to seek the unknown and broaden man’s quest for knowledge despite challenges,” he said.



Students in the community service programme helped make signage for the Luk Wu to Tai O footpath.



The programme offers students an opportunity to visit stilt houses and talk to local people in Tai O.



Student Huang Shunzhuang, who joined the virtual exchange at the University of Chicago, discussing asset pricing with classmates for a research project.



# ABOVE AND BEYOND: HIGH ACHIEVERS

The University welcomed recognition for its teaching excellence in 2020–21 and celebrated the sporting and academic achievements of its students.

## Teachers Bring the Human Touch

Art historian Dr Koon Yee-wan and clinical psychologist and mental health social work academic Professor Daniel Wong Fu-keung were each recipients of the 2021 University Grants Committee Teaching Award, which honours outstanding teaching performance, leadership and scholarly contributions to teaching and learning across Hong Kong.

Dr Koon, of the Faculty of Arts, was honoured under the General Faculty Members category for her ‘art history in action’ strategy and her commitment to help students appreciate the wider value of art to society and themselves. She brings students into direct contact with art objects and people in the art world, and constantly challenges herself and her students to seek the story behind objects, for instance how a broken piece of pottery can tell a history of technology, trade or tastes.

“I’m often questioned about the usefulness of studying art history and my answer is simple: art teaches us empathy. This underscores my teaching philosophy, which can be summarised as a deep-seated appreciation for creativity, an excitement for active learning and a belief that art has immense social value,” she said.

Professor Wong, of the Faculty of Social Sciences, was part of a cross-institutional team honoured under the Teams category for their Joint University Mental-Wellness Project, which has applied positive psychology and experiential learning to enhance student mental well-being at five universities. About 4,000 students, 1,100 staff and professionals and 1,500 members of the community have benefitted.

“We employ a strength-based and process-oriented approach to maximise students’ potentials and capacity, and ultimately to facilitate them to live a flourishing life,” he said.



*Dr Koon Yee-wan (third from right) and Professor Daniel Wong Fu-keung (fourth from left) at the 2021 UGC Teaching Award Presentation Ceremony.  
(Courtesy of University Grants Committee)*

## HKU’s Olympians

Three HKU students were among the athletes competing at the Summer Olympics held this year in Tokyo and their achievements have been honoured with generous scholarships.

Windsurfer Hayley Chan (Arts), fencer Ryan Choi (Business) and triathlete Oscar Coggins (Engineering), were already HKU Sports Scholars when they competed and were awarded an additional HK\$100,000 scholarship each to support their academic and sports career endeavours.

Hayley finished a personal best of eighth in her event and will continue training half-time and return to HKU to complete her degree in English Studies. “Sport has changed my life and I am grateful for the encouragement from the University. I look forward to witnessing more fellow students strive for excellence in world stadiums,” she said. Ryan will use the award to support his career development after he retires as a full-time athlete, while Oscar will use it to fund his studies and work towards competing in the 2024 Paris Olympics.

*Three current HKU students (windsurfer Hayley Chan, fencer Ryan Choi and triathlete Oscar Coggins) and two alumni (fencers Coco Lin and Moonie Chu) represented Hong Kong in the Tokyo Olympics.*



Two HKU alumni also competed in Tokyo – fencers Coco Lin (BA[Landscape Studies] 2017) and Moonie Chu (BSocSc 2021). To further support Hong Kong’s sporting stars, the HKU Sports Scholarship offered a total of HK\$500,000 in scholarships and other support to outstanding student athletes in 2020–21, such as residential scholarships, subsidies for training and competition and academic advising. From 2022–23, the new Direct Admission Scheme for Top Athletes will offer competitive admission mainly based on sports achievements.

## Making the Choice to Make a Difference

A passion for the environment and a desire to help Hong Kong achieve greater sustainability have inspired the path chosen by President’s Scholar Martin Chan Ho-hin.

President’s Scholars are the top HKDSE scorers in their faculties. Martin is studying a Bachelor of Science in Surveying, rather than subjects like medicine and law

that are often the preference of top-flight performers. His resume also includes activities such as a project to enliven Kwun Tong Promenade, being an eco-tour guide for younger schoolmates, and studying the government’s conservation policies for historic buildings.

“I understand my choice of programme may sound unusual and indeed I hesitated at first. However, given my deep interest in the built environment, I would really like to learn more about land development and conservation policies and contribute to this field in the future,” he said.

Martin chose HKU for the quality of its teaching and its internationalism and said he hopes in future to put his learning to work helping Hong Kong better tackle the land-use challenges it faces and achieve greater sustainability in its urban development.

President’s Scholars are each awarded at least HK\$100,000 in recognition of their outstanding achievements, to help cover such costs as tuition fees and overseas learning experiences.



*President’s Scholar Martin Chan (second from right) is one of the executive committee members in the Hong Kong Outstanding Students’ Association.*



*Martin (second from right) contributes to his neighbourhood by serving in the Yuen Long Volunteer Leaders Team.*





Research and Innovation

# RAISING THE BAR

2020–21 was a banner year as the University secured the largest share of government funding, had the highest proportion of ‘world-leading’ research in the Research Grants Council’s Research Assessment Exercise, and saw 31 HKU academics named to Clarivate’s 2021 Highly Cited Researchers List. Plans were in motion to elevate our research excellence even higher through recruitment and new facilities.

*The Laboratory for Synthetic Chemistry and Chemical Biology, directed by Professor Che Chi-ming, is one of the six research laboratories established under the Health@InnoHK cluster with a key mission to make advanced cancer a treatable chronic disease, by developing innovative, leading-edge interdisciplinary research that connects chemistry, molecular biology and clinical oncology.*



The University has consistently produced impactful research at the local and international levels, but to achieve true excellence, we must up our game. Constrained in the past by limited resources and facilities, we now are in the fortunate position of having wider support and opportunities at a time when our ambitions are growing. The University has embarked on programmes to develop new cutting-edge facilities, attract the cream of global talent, and capitalise on the opportunities presented in the Greater Bay Area (GBA). Together, these initiatives will solidify our position as a global hub of innovative research and significantly heighten our impact around the world.

## A Solid Foundation: Successes in 2020–21

HKU's strong performance in local research funding and assessment exercises has demonstrated yet again that this is the best university in Hong Kong and a leading university in the region and the world. The Research Grants Council's (RGC) Research Assessment Exercise 2020, for example, found 75% of our research submissions to be world-leading or internationally excellent. This compares with about 50% in the previous exercise in 2014, showing how well we are progressing. HKU also had the highest proportion of research scoring 4 stars (i.e., world-leading) among all Hong Kong universities and was rated best in six of 13 broad panel areas in which we were assessed: biology, health sciences, computer science and information technology, law, humanities, and education.

The University also received the largest share of most public funding exercises, both in terms of amount awarded and number of funded projects. Under the General Research Fund, we received a total of HK\$178 million (excluding on-costs) for 221 approved projects, and under the Early Career Scheme we received HK\$32 million (excluding on-costs) for 43 projects. HKU scholars lead three of eight projects awarded in the 11<sup>th</sup> round of the Theme-based Research Scheme and participate in three others, and they lead a new Area of Excellence project awarded HK\$92 million (including on-costs). Our scholars also performed strongly in the Humanities and Social Sciences Prestigious Fellowship Scheme (securing three of nine projects awarded), the Collaborative Research Fund (CRF) (nine of 21 group research projects) and the Research Impact Fund (six of 13 projects).

*Mr Zheng Hongbo (left, seated), Vice Mayor of Shenzhen, and Professor Gong Peng (right, seated), HKU's Vice-President and Pro-Vice-Chancellor (Academic Development) representing the Shenzhen Municipal People's Government and HKU respectively in the Memorandum of Understanding signing to establish an HKU campus in Shenzhen.*

Added to that list of achievements is our impressive performance in the government-funded InnoHK programme, where we lead nine research laboratories that will collectively receive more than HK\$3 billion over five years, the largest share. Our COVID-19 research has also continued to be world-leading and received HK\$94 million under the One-off CRF Coronavirus Disease and Novel Infectious Disease Research Exercise, the most among local institutions.

## People Power: The Source of Our Strength

Our funding successes are not possible without a large cohort of high-quality researchers. In 2020–21, a number of HKU scholars were honoured with international and national recognition of their excellence. Thirty-one academics were named to Clarivate's 2021 Highly Cited Researchers List – more than double the previous year when we had 13 – for producing multiple research papers that have been highly-cited by their peers. Our scholars also received two Future Science Prizes (China's 'Nobel' equivalent), two John Dirks Canada Gairdner Awards, the American Chemical Society National Award, and the ASHRAE Holladay Distinguished Fellow Award, among other international honours. Young scholars received two Xplorer Prizes and nine Excellent Young Scientist awards from Mainland China. Locally, HKU researchers received five RGC Senior Research Fellow and Research Fellow scheme awards, a Croucher Senior Research Fellowship and a Croucher Senior Medical Research Fellowship. These honours recognise that our scholars are producing globally important research.

To sustain our success and advance further, we cannot sit still. We need to bring in additional top-flight talent to produce even more impactful research and lift the bar for everyone. The HKU Global Professoriate Recruitment Campaign has started to recruit 100 world-class scholars in emerging fields with potential for scientific and scholarly breakthroughs. We also did well in the first round of the government's Global STEM Professorship



*Professor Kevin Tsia (right) of the Department of Electrical and Electronic Engineering introducing to the Chief Executive Mrs Carrie Lam (centre) the pioneering homebuilt ultrafast optical microscope system at the Photonic Systems Research Laboratory during her visit to HKU in August 2021.*

Scheme, which is funded separately, securing 15 of the 46 initial positions available.

Rising talents are also on our radar. In 2020–21, we established the 100 Outstanding Young Professorships programme valued at HK\$10 million each, alongside a recent scheme to offer 100 Presidential PhD Scholarships to promising young scholars.

## Enlarging Our Footprint

Great research talent needs a great environment to flourish, which means access to frontier technology, large computing capacity, and space for large-scale projects. HKU is a small campus, but we are undergoing a historic expansion of our research facilities both in Hong Kong and Shenzhen.

On our main campus, a new centrepiece will be the Tech Landmark, a futuristic development of four towers housing 10 new institutes dedicated to strategic research and emerging fields. One of these, the Institute of Data Science, has already secured HK\$150 million in funding, begun recruiting staff and is operating out of revamped space on the main campus. Nearly every faculty will be involved in the Institute, given the importance of data and AI to research today. Most of the other institutes will be up and running when the Tech Landmark is completed in 2024. Apart from this project, the medical school is also modernising and growing its campus and facilities to meet both its research and teaching demands.

The University is excited about the prospect of having a stronger foothold in the Greater Bay Area (GBA), with the Memorandum of Understanding announced in summer 2021 to establish its Shenzhen campus. The new campus will initially house scholars in such fields as science, engineering, architecture, business and life sciences, and make it easier for our researchers to conduct large-scale research, find industry collaborators and access new sources of funding. HKU researchers have done exceptional work over the years within the limited confines of Hong Kong, but now their horizons can broaden to the open spaces that await them in the GBA.



**HK\$902.4** MILLION  
FUNDING FROM UGC AND RGC



**HK\$894.5** MILLION  
FUNDING FROM OTHER SOURCES

for new research projects in 2020–21.

**3/8**



**THEME-BASED RESEARCH  
SCHEME PROJECTS**

These are led by HKU professors and received a total of HK\$167 million. HKU is also a participant in three other projects.

**75%**



**OF RESEARCH WORLD-LEADING OR  
INTERNATIONALLY EXCELLENT**

as assessed in the RGC's Research Assessment Exercise 2020.



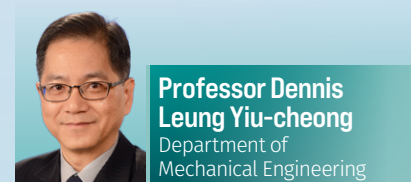
# A BIG LEAP IN THE NUMBER OF HIGHLY CITED RESEARCHERS

**Highly cited researchers** are scholars who have produced multiple papers that are influential and rank in the top 1% in terms of citations for their field. In 2021, Clarivate named **31 HKU academics** to this prestigious list, up from 13 in 2020. Our expertise in infectious diseases has helped make our research especially relevant during the COVID-19 pandemic, but we also saw increases in the number of engineering and science scholars included.

## Computer Science



## Cross-Field



## Economics and Business



## Environment and Ecology; Microbiology



## Geosciences



## Immunology



## Immunology; Microbiology



## Materials Science



## Mathematics



## Microbiology



## Physics





# HKU TAKES A LEAD IN INNOHK

InnoHK is a major initiative of the Hong Kong Government to develop the city as a hub for global research and innovation. In October 2021, it was formally announced that HKU has been awarded nine InnoHK research laboratories, the most among local universities – six Health@InnoHK labs on healthcare technologies and three AIR@InnoHK labs on artificial intelligence (AI) and robotics. The labs will collectively receive more than HK\$3 billion in funding over five years.

## OUR AIR@INNOHK LABS

### Creating New Materials for Renewable Energy: Hong Kong Quantum AI Lab

Using big data and machine learning, computational science and experimental research, this centre will develop software tools that can predict the precise properties of materials used in organic light-emitting diodes (OLED) and solid-state lithium-ion batteries, which can readily be extended to solar cells, fuel cells, related catalysts and other chemical research. The results will help widen the use of renewable energy and create new-generation materials for OLED. The centre's director is Professor Chen Guanhua in the Department of Chemistry, who is collaborating with the California Institute of Technology.

Director

**Professor Chen Guanhua**  
Department of Chemistry

### AI and Robots that Take Garment Industry to New Heights: Centre for Transformative Garment Production

AI and robotics-based solutions will be applied to enhance the operations and output of the garment sector, such as enhanced sewing capabilities, fabric handling and manufacturing; shorter product development cycles; improved efficiency; and better worker safety. A platform will be established for exchanges between industry, universities and society to ensure the research is impactful. The centre is directed by Professor Norman C Tien, Taikoo Professor of Engineering, who is collaborating with Tohoku University.

Managing Director

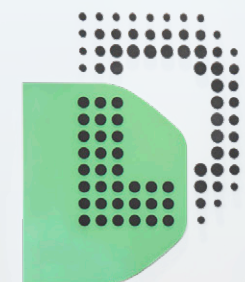
**Professor Norman C Tien**  
Department of Electrical and  
Electronic Engineering

### Realising Precision Medicine and Improving Global Health: Laboratory of Data Discovery for Health

Advanced AI applications will be used to realise precision medicine and greater global health. Under the directorship of the Dean of Medicine, Professor Gabriel Leung, Helen and Francis Zimmern Professor in Population Health, this centre will work with massive unique data resources and focus on the mitigation of vaccine hesitancy; next-generation immune-based technologies to detect infectious disease epidemics and understand their dynamics; global influenza monitoring and prediction; pathogen discovery; and AI-driven disease treatment outcome prediction, among other outcomes. Collaborators include the London School of Hygiene and Tropical Medicine, University College London and the University of Sydney.

Managing Director and  
Chief Scientific Officer

**Professor Gabriel Leung**  
Li Ka Shing Faculty of Medicine



D24H

Laboratory of Data  
Discovery for Health

醫衛大數據深析實驗室



Learn more about  
InnoHK@HKU





## OUR HEALTH@INNOHK LABS

### Treating Cancer as a Chronic Disease: Laboratory for Synthetic Chemistry and Chemical Biology

An important mission of this centre, directed by Professor Che Chi-ming, Zhou Guangzhao Professor in Natural Sciences, is to develop new anti-cancer medicines with fewer side effects so that advanced metastatic cancers can be treated as a chronic disease and the survival outcome of cancer patients can be improved. By connecting chemistry, molecular biology and clinical oncology, Professor Che and his partners will develop new drugs and biomedical diagnostics, such as targeted chemotherapeutic agents that selectively target cancer cells, and evaluate the detailed molecular mechanisms of traditional Chinese medicine. Imperial College London and Peking University are collaborators.

#### Director

**Professor Che Chi-ming**  
Department of Chemistry

### New Drugs and Treatments against Hard-to-Treat Cancers in Asia: Centre for Oncology and Immunology

Digestive malignancies as well as liver cancer, leukaemia and lymphoma are major health burdens in Asian countries. This R&D centre, co-led by Professor Mak Tak-wah and Professor Leung Suet-yi, Y M Kan Professor in Natural Sciences, in the Department of Pathology, will apply biotechnology to develop new therapies against hard-to-treat cancers. They will also apply novel functional screens and genomic and proteomic techniques to identify new druggable targets for cancer drug development.

#### Directors

**Professor Mak Tak-wah and  
Professor Leung Suet-yi**  
Department of Pathology

### New Medicines and Treatments Using Stem Cells: Centre for Translational Stem Biology

Professor Pengtao Liu of the School of Biomedical Sciences has developed world-leading patented technology that can establish expanded potential stem cells from multiple animal species. He will focus on translating that capability into developing new technologies, intellectual properties and products for use in regenerative medicine, organ transplantation and genomic medicine. There is also potential to apply his techniques to biotechnological and agricultural uses.

#### Director

**Professor Pengtao Liu**  
School of Biomedical Sciences

### Better Diagnosis, Treatment and Prevention: Advanced Biomedical Instrumentation Centre

Biomedical instrumentation has great potential for more accurate clinical diagnosis and treatment, earlier intervention, and disease prevention. Centre director Professor Anderson Shum of the Department of Mechanical Engineering, working in collaboration with the John A. Paulson School of Engineering and Applied Sciences at Harvard University, will accelerate the translation of these instruments into real-world solutions, such as developing affordable screening tests, personalised diagnostics, strategic therapeutic approaches for new treatments, and advanced medical device components.

#### Centre Director

**Professor Anderson Shum**  
Department of Mechanical Engineering

### Immune Report Card and a Focus on Emerging Viruses: Centre for Immunology & Infection

Baseline immune response profiles differ among healthy individuals. This centre aims to define the genetic and environmental factors underlying these differences which may in turn lead to a different response to vaccines or risk to diseases. Such understanding will help the development of 'precision medicine' at the population level. The centre also aims to find new solutions for public health challenges such as emerging infectious diseases. Co-led by Professor Malik Peiris, Tam Wah-Ching Professor in Medical Science, of the School of Public Health and Professor Roberto Bruzzone of the HKU-Pasteur Research Pole, the centre will refine understanding of immune responses in healthy Asian communities leading to an individualised 'Immune Report Card'; develop new vaccine platforms for influenza; investigate mosquito-borne viruses; and develop platform technologies for responding to lethal respiratory virus infections. The Institut Pasteur in Paris is a collaborator.

#### Managing Director

**Professor Malik Peiris**  
School of Public Health

#### Co-Director

**Professor Roberto Bruzzone**  
HKU-Pasteur Research Pole

### Vaccine Platform for Respiratory and Other Viruses: Centre for Virology, Vaccinology and Therapeutics

New vaccines and treatments for infectious diseases will be developed by researchers under the leadership of Professor Yuen Kwok-yung, Henry Fok Professor in Infectious Diseases. A platform will be developed to generate vaccines against respiratory viruses such as influenza and COVID-19; engineer novel antibodies to prevent and treat HIV and respiratory viruses; create host-target broad-spectrum antivirals; and develop new virus-targeting antivirals. Columbia University and Imperial College London are collaborators.

#### Director

**Professor Yuen Kwok-yung**  
Department of Microbiology



# HONOURS FOR OUR SCHOLARS

Established HKU researchers received a number of international awards during the year, while young up-and-coming academics were recognised in prestigious national funding exercises.

## GLOBALLY ACCLAIMED



Professor Malik Peiris

Professor Guan Yi

Professor Yuen Kwok-yung

Professor Vivian Yam Wing-wah

Professor Xiang Zhang

### Medical research

**Professor Malik Peiris**, Chair of Virology, was jointly awarded major international prizes twice during the year. He and **Professor Guan Yi**, Daniel CK Yu Professor in Virology and Chair of Emerging Viral Diseases, received the 2021 John Dirks Canada Gairdner Global Health Award, the first HKUMed laureates of this prestigious award, for their significant contributions to the control of zoonotic influenza and severe acute respiratory syndrome (SARS).

Meanwhile, **Professor Yuen Kwok-yung**, Chair of Infectious Diseases and Professor Peiris were jointly awarded China's 'Nobel' prize, the 2021 Future Science Prize in life sciences, which recognises outstanding scholars in Mainland China, Taiwan, Hong Kong and Macau. They were honoured for their discoveries related to SARS and its zoonotic origin, which have helped combat COVID-19 and other emerging infectious diseases.

### Chemistry

**Professor Vivian Yam Wing-wah**, Philip Wong Wilson Wong Professor in Chemistry and Energy and Chair of Chemistry, received the American Chemical Society (ACS) National Award – the 2022 Josef Michl ACS Award in Photochemistry, in recognition of her exceptional accomplishments in fundamental research in photochemistry. She was cited for her work in inorganic / organometallic photochemistry through innovative design of chromophoric / luminescent metal complexes and their supramolecular assemblies for advancing OLED, sensing and solar energy research. The award is presented biennially to researchers who have made outstanding contributions in fundamental photochemistry.

### Physics

HKU's President and Vice-Chancellor, **Professor Xiang Zhang**, Chair of Physics and Engineering, was honoured by the International Society for Optics and Photonics (SPIE) with the 2021 SPIE Mozi Award for his pioneering work in optical physics research. He has made seminal, fundamental contributions on metamaterials, super-imaging lenses, nano lasers and 2D materials, and made an experimental demonstration of the first optical super lens, which opened a new field of study.

### Engineering

**Professor Li Yuguo**, Chair Professor of Building Environment in the Department of Mechanical Engineering, was recipient of the Louise and Bill Holladay Distinguished Fellow Award 2021 of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), in recognition of his research on the environmental transmission of diseases, stretching back nearly two decades. Recently, Professor Li applied his expertise to show how ventilation played a role in more than 15 major COVID-19 outbreaks in Hong Kong, Mainland China and Japan.

**Professor Alfonso HW Ngan**, Kingboard Professor in Materials Engineering and Chair of Materials Science and Engineering of the Department of Mechanical Engineering, was the only Asian named International Fellow of the Royal Academy of Engineering this year. Professor Ngan is a world-leading expert on the microstructural basis of material strength, particularly for micro-sized materials, and he leads a nanomechanics characterisation laboratory at HKU.



Professor Li Yuguo

Professor Alfonso HW Ngan

## RISING STARS

Young academics are garnering national recognition for their groundbreaking work. Chief among them are **Professor Yao Wang**, Chair of Physics, and **Professor Huang Mingxin** of the Department of Mechanical Engineering, who were both winners of the 2021 Xplorer Prize, which honours the top 50 scientists under 45 in China. Professor Yao is also leading a recently awarded HK\$80 million Area of Excellence (AoE) grant for research on two-dimensional materials, and was named among the world's highly cited researchers in his field in consecutive years from 2018 to 2021 by Clarivate. Professor Huang has made breakthroughs in developing advanced steels and alloys, and lightweight materials for automotive applications.

Nine young HKU scientists were awarded under China's Excellent Young Scientists Fund 2021, the most among institutions in Hong Kong and Macau. An award of RMB1.6 million (HK\$1.92 million) over a maximum of three years is given to each recipient – male scientists must be aged under 38 and female scientists aged under 40. HKU's recipients included:



Professor Yao Wang

Professor Huang Mingxin

	Medicine	Dr Chu Hin	Department of Microbiology
	Science	Dr Jenny Lee Hiu-ching	Department of Physics
		Dr Dai Lixin	Department of Physics
		Dr Liu Junzhi	Department of Chemistry
		Dr Zheng Chaogu	School of Biological Sciences
		Dr Louise Amy Ashton	School of Biological Sciences
	Engineering	Dr Huang Zhiyi	Department of Computer Science
		Dr Wang Zhongrui	Department of Electrical and Electronic Engineering
		Dr Li Can	Department of Electrical and Electronic Engineering





**iDENDRON**  
HKU INNOVATION & ENTREPRENEURSHIP HUB

Knowledge Exchange and  
Technology Transfer

# GROWING OUR IMPACT

There was a significant increase in technology transfer activities in 2020–21, as the University enhanced support to our academics in translating their research into impact. A new makerspace on campus and the iDendron programme are also encouraging innovation by students and young scholars through training and the incubation of start-ups.

*Aiming to engage and grow the entrepreneurship community, iDendron has been striving to establish interdisciplinary cooperation on entrepreneurial initiatives, and support and incubate start-ups with a series of workshops.*



Getting the fruits of our research into the community is a central goal of the University, which aims to be an innovation hub for Hong Kong, the Greater Bay Area (GBA) and beyond. Over the past two years, we have streamlined operations at our Technology Transfer Office (TTO) and developed facilities that promote innovation, to enhance and advance our scholars' ability to translate their research into impact. Patent applications and commercialisation activities all increased significantly in 2020–21, as we continued to expand our footprint and bring our innovations out into the world.

## More Groundbreaking Inventions Disclosed

There was a welcome surge in activity related to innovation over the past year. The TTO handled 130 new inventions as disclosed to the University by our scholars, up 54.5% from 2019–20, and received 212 patent applications, up 57% from the previous year. Some of our researchers' most promising inventions were honoured at the 2021 Inventions Geneva Evaluation Days – Virtual Event, where HKU won 11 gold and silver awards for contributions from engineering, medical science and architecture, and a Gold Medal with Congratulations of the Jury for a nasal flu vaccine (see page 34).

The University's research impacts are expected to increase exponentially in the near future through the cutting-edge medical, engineering and science laboratories launched under the InnoHK initiative, which collectively have received more than HK\$3 billion in funding (see Research and Innovation chapter). TTO has played a major facilitating role in recruiting staff, setting up companies for each of the nine projects, and overseeing the establishment of 100,000 square feet of laboratory space at the Hong Kong Science and Technology Park, which was gradually being occupied by scientists starting from May 2021.

Innovation and knowledge exchange activities are also bringing greater tangible benefits to the University, generating HK\$18.28 million in income in 2020–21, up from HK\$10.85 million in 2019–20.

## Boosting Our Support to Innovators

These developments take us in the right direction, but to fully realise the potential of our research findings, we need to strengthen and advance the University's ability to commercialise and disseminate our innovations. Progress is also being made on this imperative.

First, we revamped funding to provide more meaningful support for start-ups and impact projects. The Technology Start-up Support Scheme for Universities at HKU (TSSSU@HKU) previously awarded HK\$8 million to 24 start-up teams. Now, HK\$5 million is set aside as Grand Awards for the best five teams, which receive HK\$1 million each, while HK\$3 million is earmarked as Seed Fund Awards for 12 to 15 teams with good potential to grow their inventions. In 2020–21, a total of 17 teams were awarded under the TSSSU@HKU. The HKU Impact Project Funding Scheme also increased its award for each project from HK\$100,000 to HK\$150,000 and supported 58 projects in 2020–21.

Second, procedures for filing patent applications and the like have been streamlined to make it easier and faster for researchers to work towards commercialising their research. TTO has also established internal teams focussed on business development, legal issues, communications and marketing, to provide a complete service package to researchers.

Third, to provide scholars and potential external partners with more information and networks, we have stepped up our outreach with two new initiatives. The Technology Transfer Primer series features regular webinars with participants from industry, the HKU community and government departments, while the monthly TTO e-newsletter *TechXfer* (circulation: 30,000) covers topics such as HKU technology and how TTO facilitates researchers.

Finally, the University formally recognised innovation in the HKU Excellence Awards, which for the first time included new categories for best HKU Innovator and best HKU Young Innovator (see page 36).



*iDendron's SEED programme supports early-stage start-up projects initiated by HKU students, alumni and staff with co-working spaces, training, supportive network and seed funding up to HK\$100,000. The above picture shows participants in the storytelling and investor pitching workshop.*

## Giving a Leg Up to Young Innovators

Young talent is critical to the future success of an innovation society, so we have developed the iDendron programme to help budding innovators and entrepreneurs realise their dreams. iDendron provides training and other support for students and recent graduates. In 2020–21, its six-month Incubation Programme for a select 20 HKU start-ups saw a 400% increase in applications. It also trained more than 500 HKU members and friends through the Entrepreneurship Academy and hosted more than 20 Founders Meetups (a new initiative).

iDendron also provides financial support through the SEED programme, which it operates with the Hong Kong Science and Technology Park and AWS Cloud Services. In 2020–21, that programme received applications from 120 teams and awarded HK\$100,000 to 20 of them. In 2021 iDendron was also named Grantee of the 'Funding Scheme for Youth Entrepreneurship in the Guangdong-Hong Kong-Macau GBA', which will award winning teams up to HK\$600,000 seed funding and other support.

## On the Horizon

These foundations were augmented with the expertise of a former technology transfer advisor of the Massachusetts Institute of Technology, who was recruited as advisor to the TTO in 2021. The University is also striving to capitalise on burgeoning developments in the GBA. This will be strengthened when the newly announced Shenzhen campus opens its doors in the next few years. The vast and unquenched demand for deep tech innovations and application of those innovations holds promise of unprecedented opportunities for years to come.



*HKU awardees at the Chief Executive's Reception for Awardees of International Exhibition of Inventions of Geneva 2021.*

110

PATENTS

granted in 2020–21, bringing the total since 1998 to 979.



100+

START-UPS

launched through iDendron since 2017.



58

KE PROJECTS

supported by the KE Impact Project Funding Scheme in 2020–21.



HK\$18.28 MILLION

income generated by innovation and knowledge exchange activities in 2020–21.





# COVID-19 EXPERTISE: FROM THE LAB TO THE COMMUNITY

HKU's world-leading research on emerging infectious diseases has come to the forefront during the COVID-19 pandemic, when our scholars were among the first to alert the world to the scale and nature of the virus. Recent research has focussed on containing the virus and protecting the population.

## Detecting COVID-19 through Sewage

Staying ahead of COVID-19 outbreaks has been a challenge around the world. But a method devised by a cross-disciplinary team led by Professor Zhang Tong in the Department of Civil Engineering is giving governments a fighting chance.

Working with colleagues in the School of Public Health, Professor Zhang developed technology that can detect the SARS-CoV-2 virus and its variants in sewage samples. It was first used in Hong Kong and proved instrumental

in preventing large community outbreaks by detecting hidden carriers.

The process was developed over summer 2020 and became incorporated into the government's control strategy for COVID-19 in December, with compulsory testing ordered for areas or buildings with positive sewage testing results. By June 2021, more than 50 silent carriers had been found and their hidden transmission chains stopped. The routine sewage monitoring system now covers over 110 stationary sampling sites in Hong Kong and can detect early warning signals of COVID-19 re-emergence from among a population of more than 5.4 million people.

The team continued to develop the process and in June successfully identified the Delta variant in Hong Kong sewage. Their sewage-testing tool won a Gold Medal at the Special Edition 2021 Inventions Geneva Evaluation Days. "Sewage may tell the health of a city, and we are learning how to listen to it," Professor Zhang said.

## Pioneering Nasal Vaccine Undergoes Clinical Trials

Professor Chen Honglin and his team in the Li Ka Shing Faculty of Medicine developed a nasal-spray COVID-19

*The testing method invented by Professor Zhang Tong's team targets different mutations of the spike protein of SARS-CoV-2 and can detect and quantify SARS-CoV-2 variants with high specificity in the sewage sample within a few hours.*



Knowledge Exchange and  
Technology Transfer

*The nasal-spray COVID-19 vaccine developed by Professor Chen Honglin (third from left) and his team won the Gold Medal with Congratulations of the Jury at the Special Edition 2021 Inventions Geneva Evaluation Days.*

vaccine that was the first of its kind to enter a human clinical trial and won the Gold Medal with Congratulations of the Jury at the Special Edition 2021 Inventions Geneva Evaluation Days.

The nasal spray delivers the vaccine to the upper respiratory tract, which is the first line of immunity for infections. It is based on technology used to manufacture influenza vaccines, with tweaking by Professor Chen to adapt it to a coronavirus. It can be produced by any influenza vaccine manufacturer, does not require special handling, and can be applied to people of all ages. It is also effective against the major variants of the SARS-CoV-2 virus that causes COVID-19.

The vaccine has been developed in partnership with Xiamen University and Beijing Wantai Biological Pharmacy Enterprise Co. Ltd. and received two stages of funding (US\$0.62 million + US\$4.8 million) from the international Coalition for Epidemic Preparedness Innovations and a HK\$20 million grant from the Hong Kong Government's Health and Medical Research Fund to be used towards

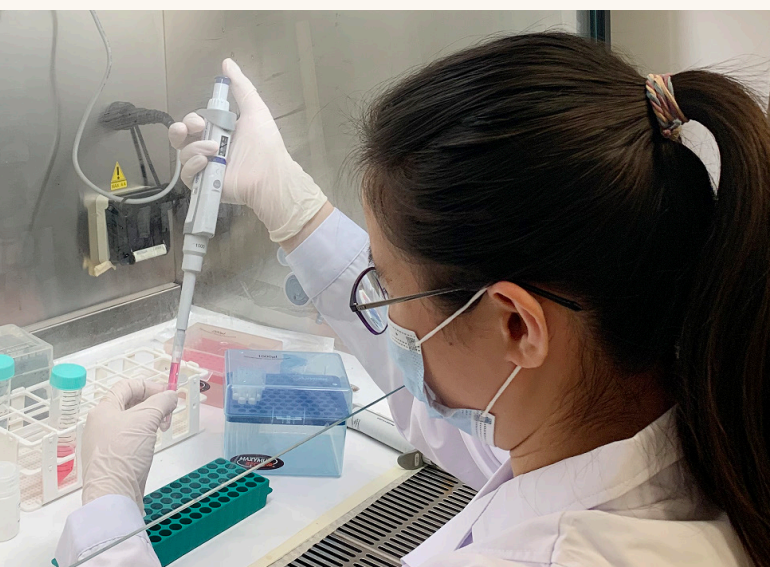
clinical trials to determine the efficacy and safety of the vaccine. The first of these was launched in Mainland China in September 2020 and in Hong Kong in March 2021. The results so far have been highly promising and Phase 3 clinical trials have been planned and were due to start before the end of 2021. "We hope this vaccine can be used to boost the immunity in the upper respiratory tract to reduce transmission in coming endemics of SARS-CoV-2," Professor Chen said.

## Community Outreach that Goes Both Ways

The Li Ka Shing Faculty of Medicine (HKUMed) began operating a Community Vaccination Centre in 2021 where it administers the COVID-19 mRNA Vaccine: Comirnaty (BNT 162b2) from Fosun Pharma / BioNTech. The centre initially operated at Ap Lei Chau Sports Centre and switched to HKUMed affiliate Gleneagles Hospital in October 2021. As of the end of October, 147,000 vaccine injections had been administered through these outlets.

In addition to this contribution to the community, HKUMed is also recruiting volunteers from its own and other vaccination centres for further research on COVID-19. Among the studies underway are a longitudinal study that follows volunteers for up to three years after vaccination to monitor their immunity over time; a study on the vaccination of adolescents and children; an investigation of the effects of combining mRNA and inactivated COVID-19 vaccines; and the testing of a booster shot.

HKUMed has also been at the forefront in advising senior policymakers and sharing solid science-based knowledge with the community since the earliest days of the pandemic. This outreach has helped shape the government's and public's response to the threat and was honoured by a 2020 Faculty Knowledge Exchange Award, which was bestowed on Professor Keiji Fukuda and his team.

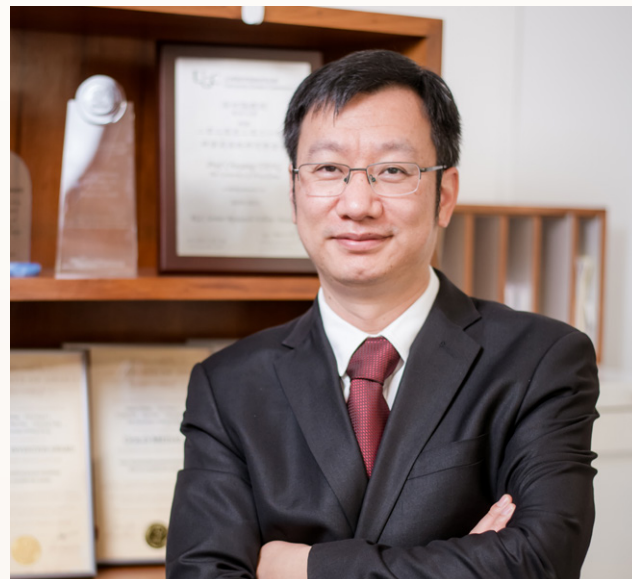


*HKUMed operated the Community Vaccination Centre at Ap Lei Chau Sports Centre from March to September 2021 and started operating the HKU Community Vaccination Centre at Gleneagles Hospital from October 2021 onwards.*



# THE INNOVATORS

Scholars who have been pushing at boundaries were honoured in the University's annual Excellence Awards, which for the first time included Innovator and Young Innovator Awards for researchers who develop inventions with high potential impact.



**Professor Tang Chuyang**  
Department of Civil Engineering



## HKU Innovator Award

### Cheap, Efficient Air and Water Filters to Protect Health

Professor Tang Chuyang of the Department of Civil Engineering is the first recipient of the HKU Innovator Award, which was awarded in March 2021. He was honoured for his work in developing filter and membrane materials that remove harmful pollutants from water and air and are highly efficient and environmentally sustainable.

Professor Tang's patented water filter, for example, is super-permeable and operates on gravity so there is no need for electricity and chemicals, making it ideal for emergencies and disaster relief. The filter can instantly and nearly completely remove heavy metals, bacteria and many other contaminants from water, and can be fitted into compact portable devices, such as foldable cups and jugs. "After an earthquake or tsunami, there is often no reliable supply of clean water nor electricity. Our filter can deliver safe drinkable water in less than one minute – it is simple and reliable," he said.

Professor Tang has also developed a patented nanofibrous filter for use in reusable face masks in the wake of COVID-19, which removes a higher quantity of particulates compared with existing face masks.



**Dr Kwok Ka-wai**  
Department of Mechanical Engineering



## HKU Young Innovator Award

### High-performance Mechanical Transmission for the Next Generation of Surgical Robots

Dr Kwok Ka-wai of the Department of Mechanical Engineering has won the first HKU Young Innovator Award for his pioneering work on high-performance mechanical transmission applied to surgical robotics used in magnetic



**Dr Caroline Dingle**  
(first from right)  
**Dr David Baker**  
(second from left)  
**Dr Timothy Bonebrake**  
(second from right)  
**Professor David Dudgeon**  
(first from left)  
School of Biological Sciences



Knowledge Exchange and  
Technology Transfer

resonance imaging (MRI). The award honours scientists aged below 40.

Dr Kwok's innovation has been to overcome the challenges of surgery taking place over extended distances and within demanding environments such as the strong magnetic field of MRI machines, or through flexible endoscopic devices. He worked closely with medical doctors and industrial partners to develop robotic systems made of non-metal and specialised materials that run on hydraulic and / or wire-driven transmission. The robots are designed to be very precise in their positioning – something that is of paramount importance in surgery.

"My research opens up a new dimension with new eyes to see through the body and organs and pinpoint specific sites for safer, more accurate and more effective positioning for robotic surgery," he said. The robots can be operated from the MRI control room at a distance of 10 metres.

Dr Kwok has built on his initial innovation to develop multiple 'world-first' prototypes for MRI-guided robots for intra-cardiac catheterisation and bilateral stereotactic brain surgery and has received awards from international robotics societies and strong interest from industry. His work also extends to endoscopic surgery, where he has developed tiny robotic instruments that can manoeuvre within an endoscope tunnel that is less than 2.8 millimetres wide.

## Knowledge Exchange Excellence Award

### Conservation Forensics Target Illegal Wildlife Trade

A team from the School of Biological Sciences won the HKU Knowledge Exchange Excellence Award for their contributions in helping track and prosecute illegal wildlife traders and increase protection for endangered animals.



*Members of the Conservation Forensics Lab, Ms Tracey Prigge (left) and Dr Astrid Andersson (right), processing samples for genetic analysis.*

Using conservation forensics techniques such as barcoding, genomics, diet analysis, population genetics and trade network analysis, Dr Caroline Dingle, Dr David Baker, Dr Timothy Bonebrake and Professor David Dudgeon have helped uncover extensive criminal activities and supported successful prosecutions by providing authorities with accurate scientific data.

For example, they developed applied stable isotope techniques to determine whether yellow-crested cockatoos available through the pet trade were bred in captivity or wild-caught – important work given there are fewer than 2,500 in the wild. The team's work has also been used to increase protection of turtles, pangolins and fish under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and International Union for Conservation of Nature (IUCN), the main bodies overseeing conservation of endangered flora and fauna.

"We came together as a result of observations we were all having of the diversity of species in trade in source countries and here in Hong Kong. We realised we had an opportunity here to use our skillset to contribute evidence that would help combat this illegal trade," Dr Dingle said.



# CHANGE FOR THE BETTER

HKU's impact extends beyond medicine, engineering and science as scholars have applied their research and expertise to improve the environment and the social and personal aspects of people's lives.

## Sustainability Project Wins UNESCO Award

The HSBC Rural Sustainability Programme operated by HKU's Policy for Sustainability Lab was a recipient of the inaugural Special Recognition for Sustainable Development category at the 2020 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation.

The traditional Hakka village of Lai Chi Wo has been settled for more than 400 years but in recent decades, villagers have migrated or moved to the city and the farming land has lain fallow. The programme was launched by the Lab in 2013 to rehabilitate agriculture and revitalise the village community and culture in an environmentally sustainable manner. This has also involved reaching out to the wider Hong Kong community and raising awareness of the village's resources and heritage. For example, a virtual festival held in February 2021 focussed on locally grown coffee beans to help urban people understand the value of local farming and its connection with ecological sustainability using an everyday product they are familiar with.



The HSBC Rural Sustainability Programme was selected as one of two winners of the inaugural Special Recognition for Sustainable Development at the 2020 UNESCO Asia-Pacific Awards for Cultural Heritage Conservation, out of 48 entries from nine countries in the Asia-Pacific region.

Only two winners were selected from 48 entries from nine countries in the UNESCO awards. The jury applauded the Lai Chi Wo project's approach and said it "upholds the key dimensions of sustainable development – economic, social and environmental – in understanding the holistic rejuvenation of the historic Hakka agricultural settlement using nature-based solutions."

## Recognition for Programme to Support Autistic Children

The Faculty of Social Sciences has been working with the JC A-Connect: Jockey Club Autism Support Network to enhance support for children with autism spectrum disorder (ASD) and their families and schools, including training key stakeholders and raising public awareness and acceptance. In 2021, the Network's approach with schools was adopted by the Education Bureau, which provided an additional HK\$62 million per year for small group training of students with ASD in mainstream schools.



The current Lai Chi Wo community is formed of indigenous villagers, newly settled farmers and volunteers. Different community groups and individual citizens outside the village were engaged in the HSBC Rural Sustainability Programme. They contribute to the adaptive creation of a landscape that ensures a cultural continuum and a respect for spirit of the place.



The mural co-creation activity in Kam Tin provided children with autism spectrum disorder the opportunity to showcase their talents.



Dr Kathy Wong (right) and Dr Paul Wong (left) shared the latest research findings and good practices in supporting the autism spectrum disorder (ASD) community in the Hong Kong ASD Conference 2021.

This approach is based on collaboration between schools and non-government organisations. It has been implemented in 510 primary and secondary schools, reaching 6,800 students – or about 55% of all ASD students in mainstream schools – and provided well over 90,000 hours of training in schools and more than 35 training seminars for teachers and NGO team leaders. The Network has also worked with paediatricians, clinical psychologists, social workers, educators, parents, young people with ASD and community partners to develop teaching aids and employment opportunities; provided training for caregivers; and organised more than 20 public education events for nearly 17,000 people.

Dr Kathy Wong of the Department of Psychology leads the project's school support team and Dr Paul Wong Wai-ching of the Department of Social Work and Social Administration leads the family support team. "The programme has produced positive outcomes – students' communication skills, emotional control, executive functioning and problem solving have been shown to improve. Parents also report improved relationships and behaviour of their children, and teachers have better understanding and more confidence in understanding their students' needs and problems and managing them," Dr Kathy Wong said.

## Early Intervention Gives Non-Chinese Speakers a Better Start

Hong Kong's ethnic minorities have a poverty rate that is twice that of the general population. A key factor is the inadequacy of their Chinese-language abilities. A programme

in the Faculty of Education is addressing the problem by targeting very young children through language programmes and training of teachers.

The 'Start from the Beginning – Chinese Supporting Scheme for Non-Chinese Speaking (NCS) Students in Kindergarten' was started with six seed schools in 2015, led by Dr Elizabeth Loh Ka-yee of HKU and her collaborator Dr Tikky To-Chan Sing-pui of the Education University of Hong Kong. It now operates in 52 schools, providing a curriculum, teaching materials, small group and individual training for students, teacher training, workshops and an assessment tool. Language proficiency tests show that it is significantly narrowing the gap between Chinese and NCS students.

The impact of the programme recently helped it attract strong funding support. It received HK\$26 million as the first recipient in Hong Kong of the Pay-for-Success fund, in which funders provide money upfront for social programmes and are reimbursed by the government if targets are met or exceeded, as well as HK\$18 million from Bank of China (Hong Kong)'s BOCHK Centenary Charity Programme. Together, these donations will help extend the reach of the Start from the Beginning programme to nearly 100 schools by 2023.

"NCS students not only need good Chinese language proficiency, they need to perform as well as their Chinese counterparts. The bar is much higher than just learning Chinese language itself," Dr Loh said.



Ms Hina Butt (left), Curriculum Officer, is providing Chinese language enrichment classes to non-Chinese speaking students using a Dynamic Enrichment Learning Mode at one of the seed schools, Pristine Kindergarten.



Participating schools shared their experience, outcomes and gains from the project in a sharing session organised in July 2021.



# The University Profile

## Students\*

### Student Admission (New Intakes)

Academic Level	Male		Female		All		% Non-local (Based on Nationality)	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
Undergraduate	2,021	2,027	2,522	2,323	4,543	4,350	23.4%	22.5%
Taught Postgraduate	2,761	2,405	3,964	3,777	6,725	6,182	50.9%	51.0%
Research Postgraduate	426	400	383	397	809	797	79.2%	80.1%
All New Intakes	5,208	4,832	6,869	6,497	12,077	11,329	42.4%	42.1%

### Enrolment of Students on All Programmes

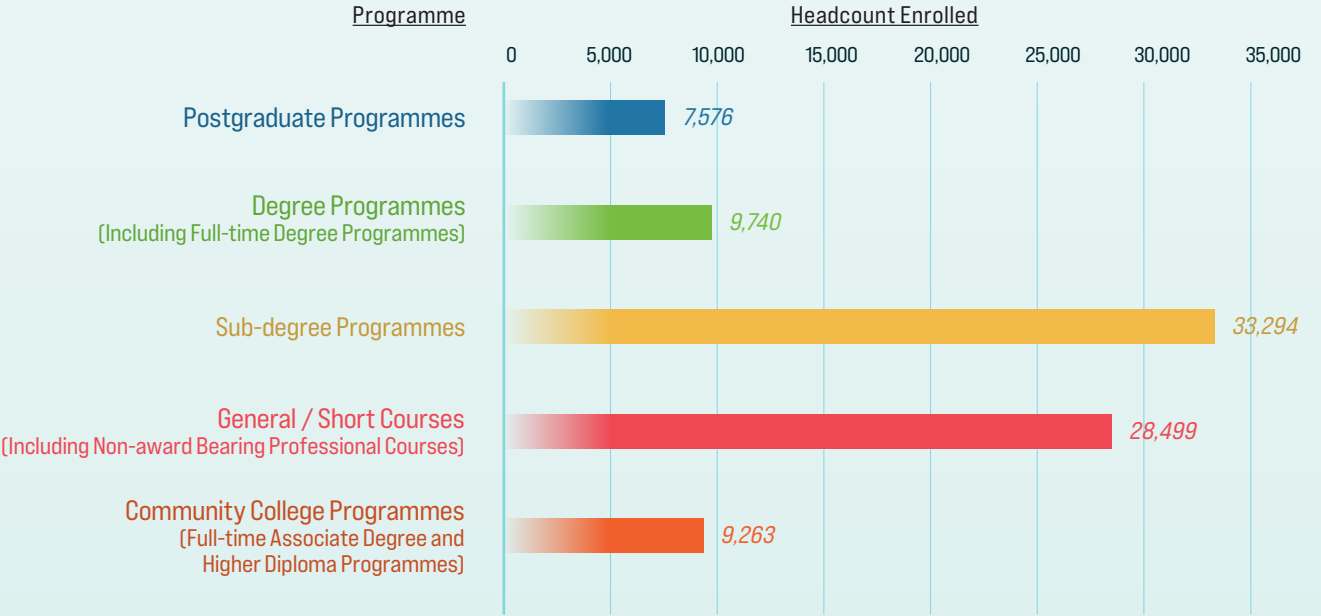
Faculty	Undergraduate		Taught Postgraduate		Research Postgraduate		All Levels	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
Architecture	729	739	727	685	121	112	1,577	1,536
Arts	1,918	1,887	802	768	218	211	2,938	2,866
Business and Economics	2,967	2,998	2,319	1,715	141	119	5,427	4,832
Dentistry	425	402	88	69	82	80	595	551
Education	993	992	1,478	1,513	225	211	2,696	2,716
Engineering	2,506	2,567	1,779	1,720	733	670	5,018	4,957
Law	551	565	1,145	1,111	80	76	1,776	1,752
Medicine	3,256	3,131	814	869	781	760	4,851	4,760
Science	2,560	2,416	544	521	594	552	3,698	3,489
Social Sciences	1,631	1,537	1,404	1,403	233	230	3,268	3,170
All Faculties	17,536	17,234	11,100	10,374	3,208	3,021	31,844	30,629
In % Distribution	55.1%	56.3%	34.9%	33.9%	10.1%	9.9%	100%	100%

\* All student statistics shown above include students on UGC-funded, self-funded as well as outreach programmes. Exchange-in and visiting students are excluded.

### Enrolment of Non-local Students (Based on Nationality)

Region	Undergraduate		Taught Postgraduate		Research Postgraduate		All Levels	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
	Headcount							
Mainland China	2,107	1,874	3,830	3,510	2,140	1,975	8,077	7,359
Other Asian Countries	1,598	1,654	371	366	197	192	2,166	2,212
Australia and New Zealand	81	80	68	74	15	18	164	172
European Countries	244	249	253	245	100	101	597	595
North American Countries	165	184	211	219	59	59	435	462
Others (e.g. Central and South America, African Countries)	18	12	22	26	29	25	69	63
All Regions	4,213	4,053	4,755	4,440	2,540	2,370	11,508	10,863
	%							
Mainland China	50.0%	46.2%	80.5%	79.1%	84.3%	83.3%	70.2%	67.7%
Other Asian Countries	37.9%	40.8%	7.8%	8.2%	7.8%	8.1%	18.8%	20.4%
Australia and New Zealand	1.9%	2.0%	1.4%	1.7%	0.6%	0.8%	1.4%	1.6%
European Countries	5.8%	6.1%	5.3%	5.5%	3.9%	4.3%	5.2%	5.5%
North American Countries	3.9%	4.5%	4.4%	4.9%	2.3%	2.5%	3.8%	4.3%
Others (e.g. Central and South America, African Countries)	0.4%	0.3%	0.5%	0.6%	1.1%	1.1%	0.6%	0.6%
All Regions	100%	100%	100%	100%	100%	100%	100%	100%

### HKU School of Professional and Continuing Education (HKU SPACE)



Enrolment of Students in Local Programmes Run by HKU SPACE in 2020-21 88,372

Enrolment of Students in Mainland Programmes Run by HKU SPACE in 2020-21 4,328

Some percentages or figures in this section do not add up to 100% or total owing to rounding.



Graduates\*

Cumulative Number of Alumni as of August 2021	253,100
---	---------

Graduates of All Programmes

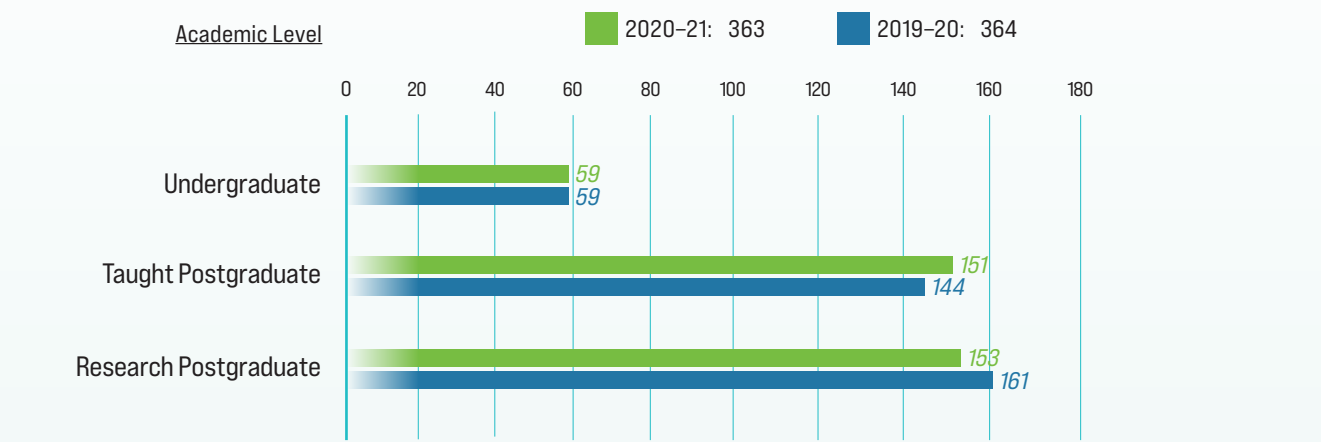
Academic Level	Male		Female		All		% Non-local (Based on Nationality)	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
Undergraduate	1,896	1,740	2,253	2,174	4,149	3,914	22.6%	20.0%
Taught Postgraduate	2,453	2,209	3,802	3,539	6,255	5,748	51.6%	52.6%
Research Postgraduate	311	276	318	278	629	554	74.6%	74.7%
All Graduates	4,660	4,225	6,373	5,991	11,033	10,216	42.0%	41.3%

Distribution of Non-local Graduates (Based on Nationality)

Region	Undergraduate		Taught Postgraduate		Research Postgraduate		All Levels	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
	Headcount							
Mainland China	453	343	2,701	2,554	377	338	3,531	3,235
Other Asian Countries	337	319	217	192	43	34	597	545
Australia and New Zealand	26	20	38	36	7	4	71	60
European Countries	75	52	135	124	26	23	236	199
North American Countries	43	46	121	105	12	15	176	166
Others (e.g. Central and South America, African Countries)	3	2	17	12	4	-	24	14
All Regions	937	782	3,229	3,023	469	414	4,635	4,219
	%							
Mainland China	48.3%	43.9%	83.6%	84.5%	80.4%	81.6%	76.2%	76.7%
Other Asian Countries	36.0%	40.8%	6.7%	6.4%	9.2%	8.2%	12.9%	12.9%
Australia and New Zealand	2.8%	2.6%	1.2%	1.2%	1.5%	1.0%	1.5%	1.4%
European Countries	8.0%	6.6%	4.2%	4.1%	5.5%	5.6%	5.1%	4.7%
North American Countries	4.6%	5.9%	3.7%	3.5%	2.6%	3.6%	3.8%	3.9%
Others (e.g. Central and South America, African Countries)	0.3%	0.3%	0.5%	0.4%	0.9%	0.0%	0.5%	0.3%
All Regions	100%	100%	100%	100%	100%	100%	100%	100%

\* All graduate statistics shown above include graduates on UGC-funded, self-funded as well as outreach programmes.

Number of Programmes<sup>#</sup>



<sup>#</sup> The number of programmes listed above include where applicable, programmes offered in the full-time and part-time modes which are counted as separate programmes. The counting of research postgraduate programmes is based on the academic departments with research postgraduate students enrolled in the year under reference.

Staff<sup>+</sup>

Number of Staff in Headcount

Category of Staff	Male		Female		All	
	2020-21	2019-20	2020-21	2019-20	2020-21	2019-20
Professoriate	798	798	310	296	1,108	1,094
Research and Non-professoriate Teaching	1,458	1,425	1,641	1,543	3,099	2,968
Other Academic	38	39	21	25	59	64
Administrative and Support	759	729	2,276	2,219	3,035	2,948
Technical	777	764	558	514	1,335	1,278
All Staff	3,830	3,755	4,806	4,597	8,636	8,352

Distribution of Non-local Professoriate Staff (Based on Nationality)

Region	Headcount		%	
	2020-21	2019-20	2020-21	2019-20
Mainland China	305	279	41.6%	39.6%
Other Asian Countries	105	96	14.3%	13.6%
Australia and New Zealand	47	51	6.4%	7.2%
European Countries	125	126	17.1%	17.9%
North American Countries	147	148	20.1%	21.0%
Others (e.g. Central and South America, African Countries)	4	4	0.5%	0.6%
All Regions	733	704	100%	100%

<sup>+</sup> All staff statistics shown above include UGC-funded and self-funded staff. Honorary and visiting staff are excluded.



Research

Research Funding

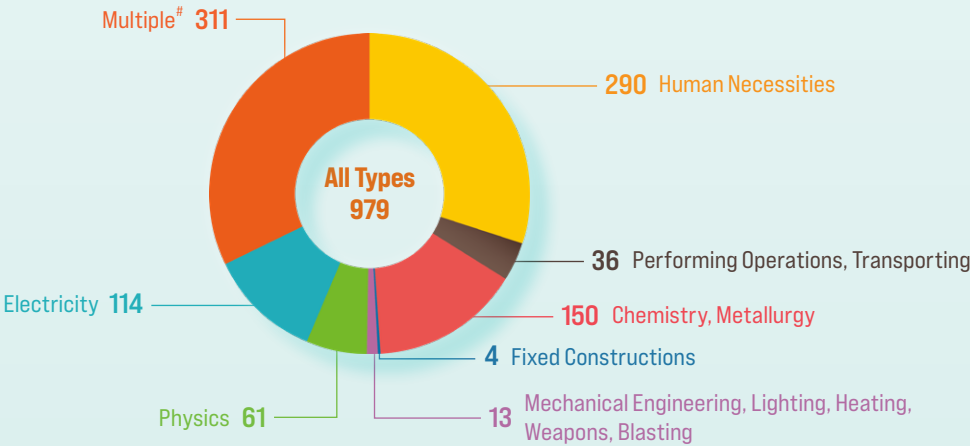
Fund Source	HK\$ (in Million)		%	
	2020–21	2019–20	2020–21	2019–20
Block Grant from University Grants Committee	2,801.8	2,505.6	52.0%	55.3%
Research Grants Council / University Grants Committee	860.2	557.8	16.0%	12.3%
Other External Sources*	1,279.0	1,094.0	23.7%	24.1%
Income from Research-related Endowment Funds	449.0	373.0	8.3%	8.2%
Total Research Funding	5,390.0	4,530.5	100%	100%

\* Includes the following fund sources: government, private, industry and HKU Foundation.

Research Projects (Ongoing and New)

Broad Disciplinary Area	Research Grants Project				Research Contract Project				All			
	No. of Projects		Value (in HK\$ M)		No. of Projects		Value (in HK\$ M)		No. of Projects		Value (in HK\$ M)	
	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20
Biology and Medicine	3,860	3,134	7,224.7	6,193.7	357	306	1,330.5	1,392.4	4,216	3,440	8,555.2	7,586.1
Engineering	765	684	1,048.7	868.3	154	122	199.6	160.3	919	806	1,248.4	1,028.7
Humanities, Social Sciences and Business Studies	1,544	1,361	2,163.8	1,836.7	197	188	363.1	340.1	1,741	1,548	2,526.9	2,176.8
Physical Sciences	588	512	713.4	527.3	39	31	86.4	79.9	627	543	799.8	607.2
All Disciplines	6,757	5,691	11,150.7	9,426.1	746	647	1,979.7	1,972.7	7,503	6,338	13,130.4	11,398.8

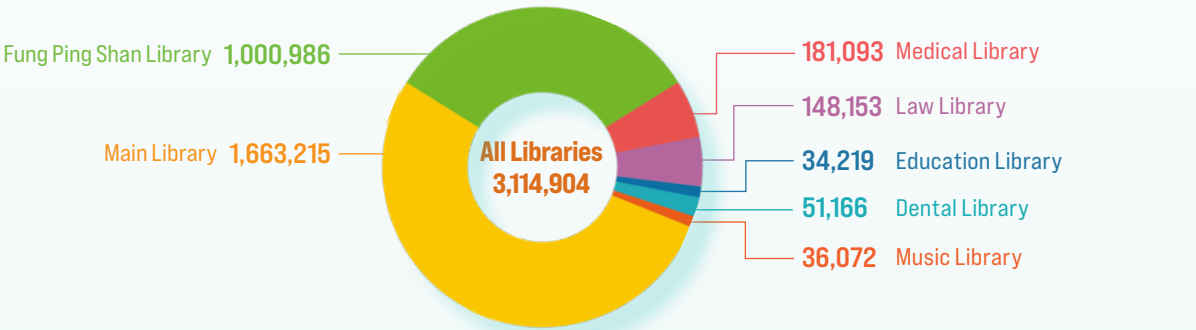
Cumulative Number of Patents Granted (since 1998 and up to June 2021)



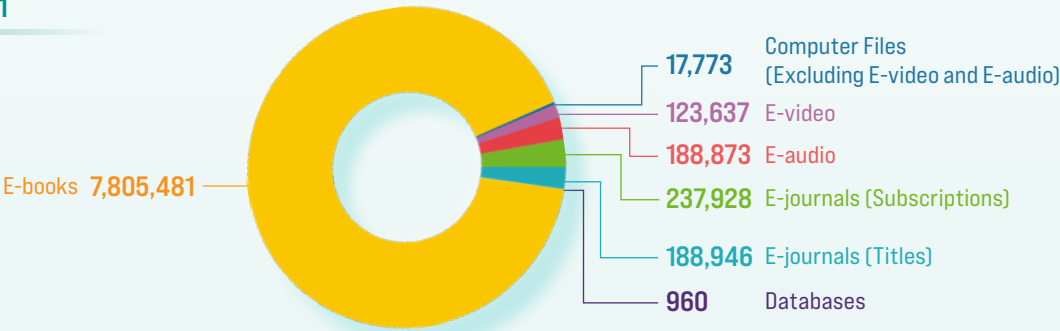
# Multiple types refer to patent granted which covers more than one of those types specified.

Library Resources

Number of Bound Volumes in Main and Specialist Libraries 2020–21



E-resources 2020–21



Total Number of Registered Library Users 2020–21	122,599
--	---------

Student Learning Support Resources / Services 2020–21

Type	Number
Total Library Seats	2,982
Group Discussion Rooms	58
Single Study Carrels / Rooms for Postgraduate Students	
Main Library	60
Law Library	38
Medical Library	33
24 Hours Library Seats for All	302
Computer Workstations	463
Wireless Network Access Points	189
Postgraduate Library Workshops	104
Information and Referral Service	68,838 Reference Transactions



Computing and Network Resources

Computing and Network Resources (as of June 2021)

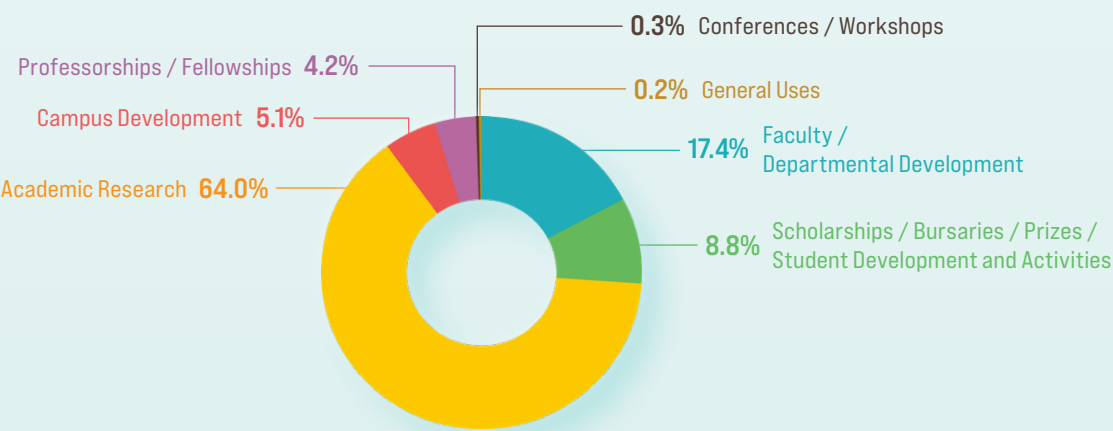
Type	Number
Number of Wired Network Access Points	56,072
Number of Wireless Network Access Points	8,225
Total Bandwidth for Direct Connection to the Internet and Research / Education Networks	22.0 (in Gbps)
Aggregated Central Computing Power for Teaching and Research Purposes (Theoretical Peak Computing Speed)	901.7 (in TFLOPS)

Giving to HKU

Donation Facts 2020–21

Total Number of Gifts Received	7,060
Total Amount of Donations	HK\$639M
Total Number of Donors	4,844
Number of First-time Donors	4,041
Ratio of Alumni vs Non-alumni Donors	73 : 27

Distribution of Donations 2020–21



Finance

An Analysis of Consolidated Income and Expenditure for the Year Ended June 30, 2021

Revenue	HKS'000	%
Government Subventions	5,917,304	40.4%
Tuition, Programmes and Other Fees	3,459,675	23.6%
Donations and Benefactions	579,719	4.0%
Auxiliary Services	345,805	2.4%
Interest and Investment Gain	3,301,846	22.5%
Other Income	1,044,264	7.1%
<i>Total Revenue</i>	<i>14,648,613</i>	<i>100%</i>

Expenditure	HKS'000	%
<i>Teaching, Learning and Research</i>	8,357,686	74.3%
Teaching and Research	7,389,199	65.7%
Library	240,778	2.1%
Central Computing Facilities	228,655	2.0%
Other Academic Services	499,054	4.4%
<i>Institutional Support</i>	2,893,230	25.7%
Management and General	536,966	4.8%
Premises and Related Expenses	1,509,766	13.4%
Student and General Education Services	586,118	5.2%
Other Activities	260,380	2.3%
<i>Total Expenditure</i>	<i>11,250,916</i>	<i>100%</i>



Space

Distribution of Space by Categories Based on Total Gross Covered Floor Area (as of June 2021)

Category	Gross Covered Floor Area (in sq. m.)	%
Academic Space	311,942	45.5%
Central Libraries	44,733	6.5%
Central Administration and Maintenance	27,838	4.1%
Student and Staff Amenities	31,713	4.6%
Sports Facilities	11,571	1.7%
Student Halls of Residence and Staff Quarters	250,832	36.6%
Others (Including HKU Museum and HKU Press)	6,554	1.0%
All Categories	685,183	100%

HKU SPACE Gross Covered Floor Area (as of June 2021)	40,553 sq. m.
--	---------------

Land Holdings (as of June 2021)

Site	Lot Area (in Hectares)
Hong Kong Island	
Main Campus	17.7
Medical Campus	4.2
Other Sites on Pokfulam	23.4
New Territories	
Kadoorie Centre	9.6
All	54.9

Halls and Student Residences (as of June 2021)

Number of Places	Number
Existing	6,200
Planned	2,450

An Extract from the University’s Annual Accounts 2020-21

Overview

The financial year 2020–21 was the second year of the 2019–22 triennium.

In face of the persistence of the COVID-19 pandemic locally and globally, the University has adopted measures to maintain a safe and healthy environment on campus while gradually resuming its normal activities such as face-to-face interactions with students. With strong commitment to serve the society, the University has provided various supports in combating against COVID-19.

The Group has demonstrated its commitment to provide world-class education and research and delivered the impact through internationalisation, innovation and interdisciplinarity. During the financial year, the Group recorded a surplus of HK\$3,439 million, reflecting the results of the market recovery and internal cost saving initiatives.

In preparing the consolidated financial statements, the Group has adopted certain new / revised Hong Kong Financial Reporting Standards (HKFRS) issued by the Hong Kong Institute of Certified Public Accountants which are relevant and applicable to the Group’s operation and comply with the Statement of Recommended Practice for the University Grants Committee (UGC)-Funded Institutions.

Results for the Year

The Group’s consolidated results for the year ended June 30, 2021 are summarised as follows:

	2021 HK\$ million	2020 HK\$ million
Income	14,649	12,514
Expenditure	(11,251)	(11,092)
Surplus from Operations	3,398	1,422
Share of Surplus of Joint Ventures and Associates	19	12
Surplus for the Year	3,417	1,434
Other Comprehensive Income / (Loss)	22	(7)
Total Comprehensive Income	3,439	1,427

The consolidated income for the year 2020–21 was HK\$14,649 million, an increase of HK\$2,135 million from last year. This was mainly due to increase in investment income during the year.

The consolidated expenditure increased slightly by 1% to HK\$11,251 million (2019–20: HK\$11,092 million), of which HK\$8,358 million (2019–20: HK\$8,056 million) was expended on the Group’s teaching, learning and research activities.

Financial Outlook

With the conclusion of the financial year 2020–21, the University has entered into the final year of the 2019–22 triennium. The University will continue to build community partnerships and rally support while re-aligning resources to gain efficiency in pursuit of excellence in education.

For the pursuit of the University’s education mission, the University will continue to invest in human resources, infrastructure and technology upgrades. The University has kickstarted a number of capital projects like the Tech Landmark at the University Drive for building an innovative science and engineering hub of research and technology; the iconic academic, cultural and sports facilities complex at Pokfield Road site; and various hostels.

The University will maintain prudent and yet flexible in financial management and will continue to ride on its successes to elevate to the next level of fulfilling the commitments to be an Asia’s leading global university.

The University’s Annual Accounts can be found at [www.feo.hku.hk/finance/](http://www.feo.hku.hk/finance/).



Any correspondence or feedback on this extract or the accounts should be emailed to [finance-mail@hku.hk](mailto:finance-mail@hku.hk).



## The University of Hong Kong Consolidated Statement of Comprehensive Income

For the year ended June 30, 2021

(Expressed in thousands of Hong Kong dollars)	2021	2020
<b>Revenue</b>		
Government Subventions	5,917,304	6,103,359
Tuition, Programmes and Other Fees	3,459,675	3,280,160
Donations and Benefactions	579,719	1,232,274
Auxiliary Services	345,805	394,497
Interest and Investment Gain	3,301,846	533,223
Other Income	1,044,264	970,626
	<u>14,648,613</u>	<u>12,514,139</u>
<b>Expenditure</b>		
Teaching, Learning and Research		
Teaching and Research	7,389,199	7,141,147
Library	240,778	267,883
Central Computing Facilities	228,655	215,357
Other Academic Services	499,054	431,787
Institutional Support		
Management and General	536,966	581,370
Premises and Related Expenses	1,509,766	1,591,150
Student and General Education Services	586,118	587,901
Other Activities	260,380	275,137
	<u>11,250,916</u>	<u>11,091,732</u>
<b>Surplus for the Year before Share of Joint Ventures and Associates</b>	<b>3,397,697</b>	<b>1,422,407</b>
<b>Share of Surplus of Joint Ventures</b>	<b>19,796</b>	<b>12,462</b>
<b>Share of Deficit of Associates</b>	<b>(186)</b>	<b>(575)</b>
<b>Surplus for the Year</b>	<b><u>3,417,307</u></b>	<b><u>1,434,294</u></b>
<b>Other Comprehensive Income/ (Loss)</b>		
Items that may be recognised in the Consolidated Statement of Comprehensive Income		
Exchange Differences	12,483	(5,402)
Share of Other Comprehensive Income / (Loss) of a Joint Venture	452	(1,907)
Items that will not be recognised subsequently in the Consolidated Statement of Comprehensive Income		
Re-measurement of Defined Benefit Retirement Scheme Assets	8,699	640
	<u>21,634</u>	<u>(6,669)</u>
<b>Total Comprehensive Income for the Year</b>	<b><u>3,438,941</u></b>	<b><u>1,427,625</u></b>
<b>Attributable to:</b>		
UGC Funds	389,803	231,618
Restricted Funds	735,050	(154,299)
Other Funds	2,314,088	1,350,306
	<u>3,438,941</u>	<u>1,427,625</u>

## The University of Hong Kong Consolidated Statement of Financial Position

As at June 30, 2021

(Expressed in thousands of Hong Kong dollars)	2021	2020
<b>Assets</b>		
<b>Non-Current Assets</b>		
Property, Plant and Equipment	8,936,554	7,868,885
Right-of-Use Assets	1,835,811	1,557,010
Intangible Assets	9,207	8,097
Interests in Associates	5,900	6,086
Interests in Joint Ventures	278,265	258,017
Financial Investments at Amortised Cost	1,885,183	1,584,582
Financial Assets at Fair Value through Profit or Loss	17,555,384	14,125,407
Loans Receivable and Assets Classified as Held for Sale	3,171	3,875
Accounts Receivable, Prepayments and Deposits	732,248	771,369
Defined Benefit Retirement Scheme Assets	20,231	11,841
	<u>31,261,954</u>	<u>26,195,169</u>
<b>Current Assets</b>		
Financial Investments at Amortised Cost	521,254	510,097
Financial Assets at Fair Value through Profit or Loss	348,186	410,128
Loans Receivable and Assets Classified as Held for Sale	113,453	130,851
Inventories	2,226	3,383
Accounts Receivable, Prepayments and Deposits	1,255,074	1,157,237
Amount Due from a Joint Venture	19,710	19,242
Bank Deposits with Original Maturity over Three Months	6,629,463	7,590,758
Cash and Cash Equivalents	2,954,454	1,941,264
	<u>11,843,820</u>	<u>11,762,960</u>
<b>Total Assets</b>	<b><u>43,105,774</u></b>	<b><u>37,958,129</u></b>
<b>Funds</b>		
UGC Funds	2,342,953	2,171,637
Restricted Funds	10,820,469	9,300,563
Other Funds	17,797,519	16,049,800
<b>Total Funds</b>	<b><u>30,960,941</u></b>	<b><u>27,522,000</u></b>
<b>Liabilities</b>		
<b>Non-Current Liabilities</b>		
Accounts Payable and Accruals	55,481	42,353
Employee Benefit Accruals	42,863	46,067
Loans and Borrowings	95,008	95,008
Lease Liabilities	141,149	169,475
Deferred Capital Funds	3,600,457	3,104,320
	<u>3,934,958</u>	<u>3,457,223</u>
<b>Current Liabilities</b>		
Accounts Payable and Accruals	3,643,459	3,122,117
Amount Due to a Joint Venture	2,040	2,047
Employee Benefit Accruals	888,419	819,686
Loans and Borrowings	67,200	77,550
Lease Liabilities	91,288	86,989
Deferred Income	3,517,469	2,870,517
	<u>8,209,875</u>	<u>6,978,906</u>
<b>Total Liabilities</b>	<b><u>12,144,833</u></b>	<b><u>10,436,129</u></b>
<b>Total Funds and Liabilities</b>	<b><u>43,105,774</u></b>	<b><u>37,958,129</u></b>
<b>Net Current Assets</b>	<b><u>3,633,945</u></b>	<b><u>4,784,054</u></b>
<b>Total Assets Less Current Liabilities</b>	<b><u>34,895,899</u></b>	<b><u>30,979,223</u></b>







Membership Category	Member	Membership Category	Member
4. Members of the Senate		(g) Six elected teachers, not being Professors	<i>Dr Jason Cheung Pui Yin</i> <i>Dr Cheung Sai Hung</i> <i>Dr Ben Alan Gerlofs</i> <i>Dr Louis Wong Ngai Yuen</i> <i>Dr Yau Wai Pan</i> .....
(a) President and Vice-Chancellor		(h) Director of the School of Professional and Continuing Education	<i>Professor William Lee Keng Mun</i>
(b) Provost and Deputy Vice-Chancellor		(i) Dean of the Graduate School	<i>Professor Max Shen Zuojun</i>
(c) Vice-Presidents and Pro-Vice-Chancellors		(j) Librarian	<i>Ms Flora Ng Lai Kuen</i>
(d) Dean of each Faculty	<i>Professor Christopher John Webster (Architecture)</i> <i>Professor Derek Burton Collins (Arts)</i> <i>Professor Cai Hongbin (Business and Economics)</i> <i>Professor Thomas Frank Flemmig (Dentistry)</i> <i>Professor Anne Lyn Goodwin (Education)</i> <i>Professor David Joseph Srolovitz (Engineering)</i> <i>Professor Fu Hualing (Law)</i> <i>Professor Gabriel Matthew Leung (Medicine)</i> <i>Professor Vivian Yam Wing Wah (Science)</i> <i>Professor William Gordon Hayward (Social Sciences)</i>	(k) Dean of Student Affairs	<i>Professor Samson Tse Shu Ki</i>
		(l) Three elected full-time students (at least one undergraduate and one postgraduate)	<i>Mr Ryan Mak Chun Kei</i> <i>Mr Wang Yuchen</i> <i>Mr Jason Wong Ching Hin</i>
(e) Chairman of each Board of the Faculty	<i>Professor Chau Kwong Wing (Architecture)</i> <i>Professor Nicole Huang Xincun (Arts)</i> <i>Professor Wong Kit Pong (Business and Economics)</i> <i>Professor May Wong Chun Mei (Dentistry)</i> <i>Professor Frederick Leung Koon Shing (Education)</i> <i>Professor Kao Chi Ming (Engineering)</i> <i>Professor Thomas Scott Veitch (Law)</i> <i>Professor Wallace Lau Chak Sing (Medicine)</i> <i>Professor Yuen Kam Chuen (Science)</i> <i>Professor Karen Ann Laidler (Social Sciences)</i>	5. Registrar	<i>Ms Jeannie Tsang Wing Shi</i>
		6. Chairman of Convocation Deputy Chairman of Convocation Clerk of Convocation	<i>Mr Mak Tung Wing</i> <i>Mr Jeffrey Tse Hoi Shing</i> <i>Dr Alex Chan Wo Shun</i>
		7. Five persons elected by the Members of the Legislative Council from among their own number	<i>The Honourable Vincent Cheng Wing Shun</i> <i>The Honourable Cheung Kwok Kwan</i> <i>The Honourable Mrs Regina Ip Lau Suk Yee</i> <i>The Honourable Jimmy Ng Wing Ka</i> <i>The Honourable Abraham Shek Lai Him</i>
(f) Twelve elected Professors	<i>Professor Douglas Wayne Arner</i> <i>Professor Edmund Lam Yin Mun</i> <i>Professor Wallace Lau Chak Sing</i> <i>Professor Frankie Leung Ka Li</i> <i>Professor George Lin Chu Sheng</i> <i>Professor Quentin Andrew Parker</i> <i>Professor Leo Poon Lit Man</i> <i>Professor Tao Zhigang</i> <i>Professor Wang Min</i> <i>Professor Kenneth Wong Kak Yuen</i> <i>Professor Anthony Yeh Gar On</i> .....	8. Twelve members elected from among its number by the Standing Committee of Convocation	<i>Ms Hilda Chan Hon Yan</i> <i>Mr King Chan Ka Kin</i> <i>Mr Spencer Chan Shiu Bun</i> <i>Ms Rita Chen Suk Shyan</i> <i>Mr Ching Ming Tat</i> <i>Ms Fong Yuet Wah</i> <i>Mr Alex Lai Chun Hung</i> <i>Mr Charles Lai Chun Wai</i> <i>Dr Liu Chun Wah</i> <i>Mr Ng Kwok Wa</i> <i>Mr Eddie Shee Shing Chung</i> <i>Mr Tsui Hou Ming</i>



Membership Category	Member
9. Five members elected by the Court	<i>Ms Wendy Gan Kim See</i> <i>Dr David Mong Tak Yeung</i> <i>Mr Ernest Wong Yiu Kit</i> <i>Professor Richard Yu Yue Hong</i> <i>Mr George Yuen Kam Ho</i>
10. Three members elected by the Grant Schools Council	<i>Miss Maggie Chau Wai Chu</i> <i>Mr Frederick Poon Siu Chi</i> <i>Mr Dennis Yuen Dick Yan</i>
11. Three members elected by the Hong Kong Subsidized Secondary Schools Council	<i>Mr Lau Chun Hung</i> <i>Ms Lee Yi Ying</i> <i>Mr Tam Kim Hung</i>
12. Not more than twenty members, not being already included in any of the foregoing classes, appointed by the Chancellor	<i>Professor Philip Chen Nan Lok</i> <i>Mrs Jennifer Cheng</i> <i>Mr David Fong Man Hung</i> <i>Mr Andrew Fung Hau Chung</i> <i>Ms Sabrina Fung Wing Yee</i> <i>Ms Pansy Ho Chiu King</i> <i>Ms Belinda Hung Kwai Yi</i> <i>Mr Kuok Khoon Hua</i> <i>Ir Edgar Kwan Chi Ping</i> <i>Mr David Lau Pak Wai</i> <i>Mr Kenneth Benjamin Li</i> <i>Professor Walton Li Wai Tat</i> <i>Ms Amy Lo Choi Wan</i> <i>Mr Weber Lo Wai Pak</i> <i>Mr Theodore Ma Heng</i> <i>The Honourable Jasper Tsang Yok Sing</i> <i>Mr Albert Wong Hak Keung</i> <i>Dr Alan Yu Ho Lam</i> <i>Mr Zhang Lei</i> .....

Editorial Team

Chief Editor:	Ella Lee, Director of Communications and Public Affairs
Managing Editor:	Shirley Yeung, Publications Manager
Editor:	Yu Nga-wing
Copy Editors:	Kelvin Au, Sendy Leung
Writer:	Kathy Griffin
Design and Production:	oneZEBRA Limited
Photographer:	Alan Law

Contribution and Feedback

With special thanks to faculties, departments, staff and students who contributed their time and their photographs to the *HKU Annual Report 2021*.

Care for the Environment

While our publication is printed on environmentally friendly paper, we urge you to share your copy with friends and colleagues to help reduce our carbon footprint. Alternatively, you may like to read the *HKU Annual Report 2021* online at [go.hku.hk/annualreport](https://go.hku.hk/annualreport).

If you would like to opt-out of receiving a printed copy and subscribe to the electronic version of publications from the Communications and Public Affairs Office, please visit [go.hku.hk/puboptout](https://go.hku.hk/puboptout).

Further information about the *HKU Annual Report*, or the University, may be obtained from the Communications and Public Affairs Office at [cpao@hku.hk](mailto:cpao@hku.hk).





