NUS National University of Singapore | Faculty of Science

OmniSCI

An online publication for NUS Science students and alumni | December 2017 issue

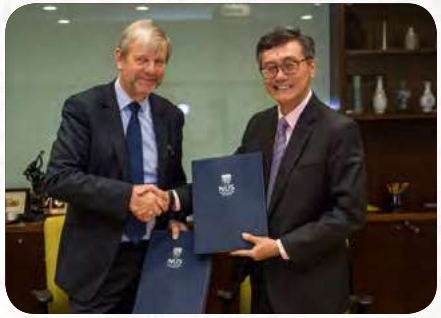
HIGHLIGHTS

The Data Analytics Consulting Centre

Transforming businesses and education with Big Data

30th International Young Physicists' Tournament

Team Singapore emerged winners!



New Degree and Exchange Programmes

Enhancing students' domain expertise and global experience

Yearly Key Events

Commencement and Dean's Welcome Tea

NUS Science Merit Scholarships Fundraising

Raising scholarships to attract talented students to study Science at NUS

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OUTREACH

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What's Up? Check out the events from Dec 2017 to May 2018!

The Data Analytics Consulting Centre

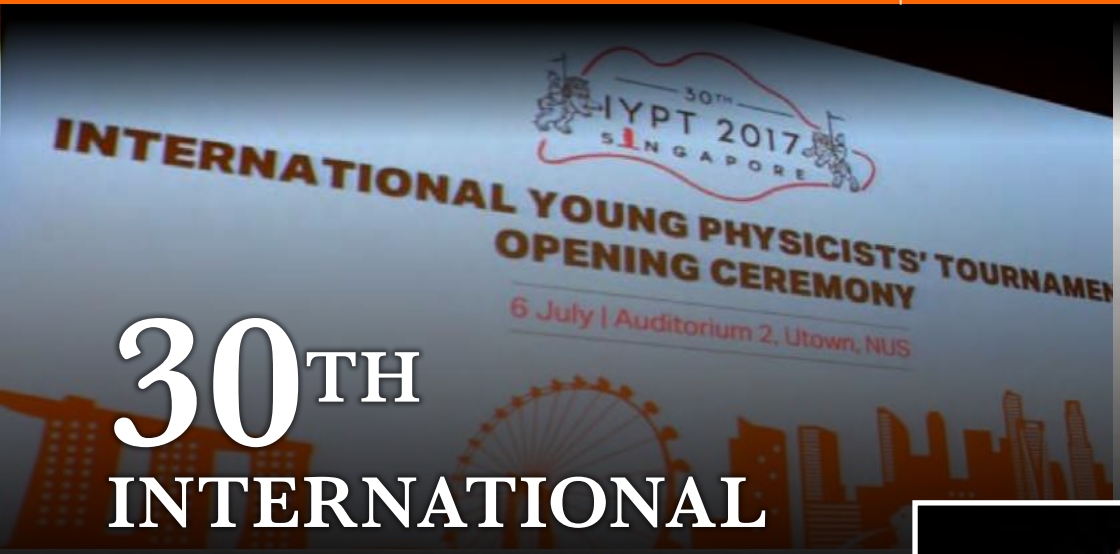
The Faculty of Science's Data Analytics Consulting Centre (DACC) helps clients to unlock value from Big Data using cutting-edge techniques and advanced data analytics strategies. This makes businesses smarter, more productive and more competitive.

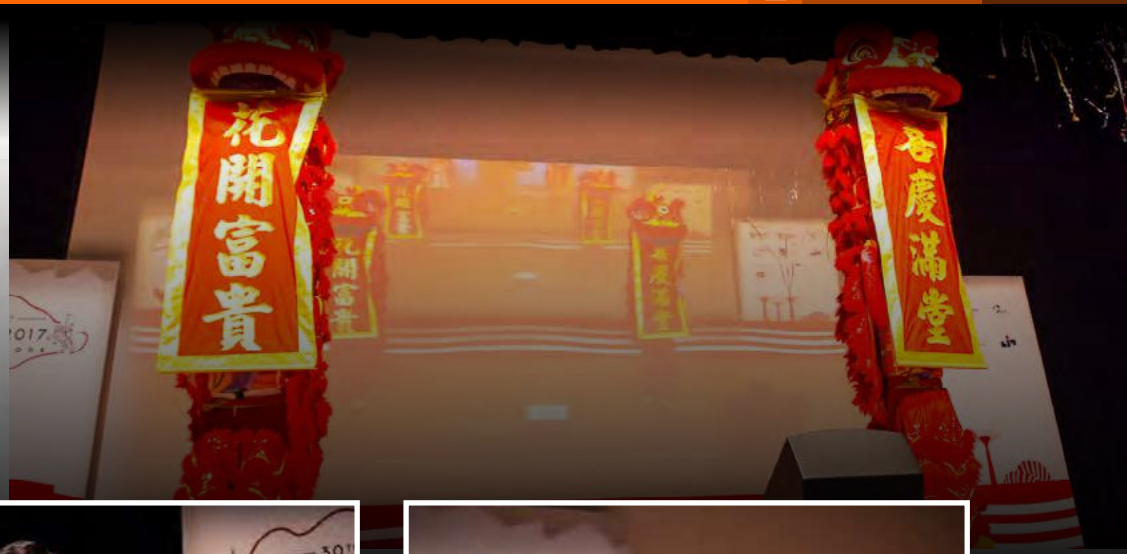
Its industry-leading software applications and training programmes enable businesses to acquire and retain customers; create new business models, products and services; and optimise operations and performance.

The DACC works with industry partners to organise conferences and seminars to encourage adoption of leading-edge data-driven solutions that solve business challenges.

Its programmes also provide students exposure to real-world data-driven problems. The Faculty's Data Science and Analytics undergraduates can participate in the Cooperative Education Programme which integrates studies with on-the-job learning through internships. The DACC also engages the youth through data science talks at schools, to raise awareness of exciting new opportunities in the fast-growing data science sector.

The DACC is headed by Prof Carol HARGREAVES, an analytics and business intelligence professional with over 28 years' analytics experience. Please refer to http://www.science.nus.edu.sg/DACC/ for more information.





30TH INTERNATIONAL YOUNG PHYSICISTS' TOURNAMENT

For the first time, Singapore hosted the 30th International Young Physicists' Tournament (IYPT), one of the world's foremost annual physics competitions, from 5 to 12 July. There were 31 international teams comprising 290 young physicists, jurors and observers, the highest participation in IYPT's history.

This year's event was especially meaningful with the presence of IYPT founder Dr Evgeny YUNOSOV.

At the competition, secondary and high school students teamed up to solve complex scientific problems and to present and defend their solutions through scientific discussions at"Physics Fights". Team Hungary, Team Poland, Team China and Team Singapore were the finalists. Following intense discussions at the final "Physics Fight" which covered various topics like Archimedes' principle, Team Singapore emerged the champion!

Prof Sow Chorng Haur, Chairman of the Local Organising Committee and Head, Department of Physics, welcomed visitors for the 30th IYPT

IYPT President Prof Martin Plesch shared how the IYPT competition had grown over the years

Guest-of-Honour Mr Quek Gim Pew, Chief Defence Scientist, Ministry of Defence, noted the importance of networking amongst scientific communities

IYPT founder Dr Evgeny Yunosov highlighted IYPT's role in educating young physicists around the world

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Team Singapore, comprising Markus LENDERMANN and LI Kang Chen from NUS High School of Mathematics and Science, and WANG Huaijin, Rachel PANG Qing and FU Xinghong from RafFles Institution, said, “We learnt a lot from participants from other countries.”

Participants received their certificates and medals at the award ceremony, with some teams adorned in traditional costumes. Social and cross-cultural programmes were also organised, including a city tour, an outing to Universal Studios Singapore and a visit to the Department of Physics.

Teams fought hard to defend their theories and solutions during the intensive "Physics Fights"

A group photo with the top four teams

Guest-of-Honour Ms Chan Lai Fung, Permanent Secretary (Education), Ministry of Education, encouraged young physicists to develop communication and collaborative skills

Team Singapore emerged as champions!

Performances marked the special occasion

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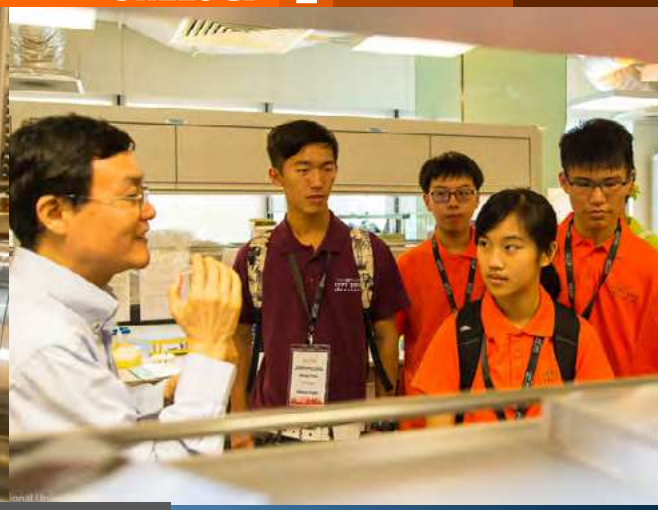
Team Australia said, “We had the opportunity to discuss physics concepts with people all over the world.” Team Brazil said, “We met people with similar interests in science and specifically, physics and technology development.”

IYPT 2017’s organising committee comprised NUS, the National Institute of Education (NIE), Nanyang Technological University (NTU), DSO National Laboratories, the Agency for Science, Technology and Research (A*STAR) and Institute of Physics Singapore, with support from the Ministry of Education (MOE).

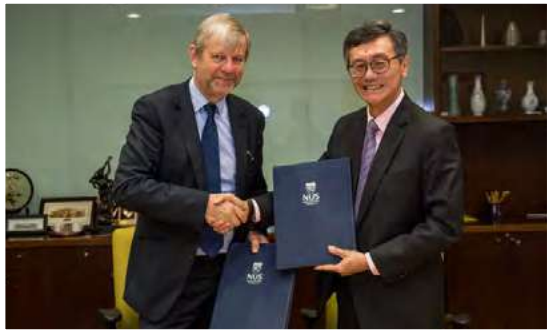
Participants were treated to a city tour and a visit to Universal Studios Singapore



Visit to the Physics Department

Participants got to experience a portable digital planetarium

New Degree and Exchange Programmes



Prof Sir Pete Downes, Principal and Vice-Chancellor, University of Dundee (left) and Prof Tan Eng Chye, Deputy President (Academic Affairs) and Provost, NUS

Our Transformative Science Education equips students to be future-ready through specialised domain expertise and transferable skills. Exchange programmes with reputable partner universities also provide students a unique international educational experience.

New Degree Programmes

The Faculty will offer a new B.Sc. in Pharmaceutical Science Programme from Academic Year 2018/2019. The programme aims to groom pharmaceutical scientists by equipping them with specialised skills for jobs in growth sectors. Students will acquire deep understanding of the drug discovery and development process, complemented with strong foundational knowledge of the regulatory and commercial environment. They can therefore contribute effectively across the whole continuum of the pharmaceutical business. The multidisciplinary programme is offered in partnership with Chemistry, Life Sciences, the Centre of Regulatory Excellence at Duke-NUS Medical School and the industry.

A Memorandum of Understanding with the University of Dundee (UoD) opens up a Joint Degree Programme for Life Sciences students to study drug discovery and design at UoD. UoD's Life Sciences students can study Neurobiology, Human Physiology and Functional Ageing or Genetic Medicine at NUS.

A Concurrent Degree Programme (CDP), encompassing NUS' B.Sc. (Life Sciences)-Doctor of Veterinary Medicine offered by the University of Melbourne, equips students with theoretical, practical and clinical training in veterinary medicine and veterinary science. The CDP integrates the two degrees, enabling students to accelerate and complete the programme in 5½ years.

New Student Exchange Programmes (SEPs)

An SEP with The University of Tokyo (UTokyo) provides a unique opportunity for Environmental Studies and Faculty students to read courses at UTokyo's PEAK (Programmes in English at Komaba). Another SEP with the Norwegian University of Science and Technology (NTNU) enables Pharmacy students to undertake a final year research project at NTNU.

We also established an Undergraduate Research Opportunities Programme in Science (UROPS)-SEP with Zhiyuan College, Shanghai Jiao Tong University and St John's College, University of Cambridge offering research-based attachments and internships for students.

St John's College, Cambridge and NUS representatives

Shanghai Jiao Tong University and NUS representatives

Yearly Key Events

Commencement 2017

on 9 and 10 July saw the graduation 1,231 Science students who were conferred Bachelor degrees and 422 M.Sc. or Ph.D. graduates.

Four guest speakers delivered inspiring speeches on their life lessons and career experiences. They were Dr Timothy BANKS, Director of Advanced Analytics, The Nielson Company; Ms Rosemary CHNG, Founder and CEO of Elixir Botanica Pte Ltd; Mr TEO Kee Meng, Managing Director of Transmedic Group Pte Ltd; and Mr Stephen OOI Hong Liang, Non-Executive Director/Chairman of Strategic Operating Committee of XR Med China.

Our valedictorians also shared about their learning journeys at NUS and how they are preparing for the next chapter in their lives.

Click here for more information

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Dr Timothy Banks encouraged graduands to look forward with hope to the great adventure that was about to begin

Ms Rosemary Chng exhorted graduands to stay grounded, but do not stop running and chasing the rainbows

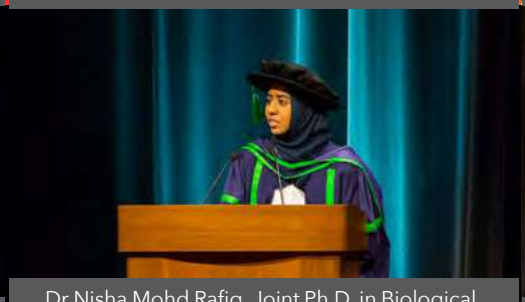
Mr Teo Kee Meng reminded graduands to seize opportunities as the first mover

Mr Stephen Ooi advised graduands to be inquisitive, open minded and to keep learning

Khor Shi-Jie, Honours (Highest Distinction) in Mathematics, shared how the programme trained him to analyse problems and think out of the box to derive elegant solutions

Dr Wen Jun, Ph.D. in Statistics and Applied Probability, spoke on how the degree would open many doors of opportunities

Edwin Chan, Honours (Highest Distinction) in Life Sciences encouraged fellow graduands to pursue their dreams



Dr Nisha Mohd Rafiq, Joint Ph.D. in Biological Sciences, NUS-King's College London, exhorted fellow graduands to not let fear of failure stop them from being their best

Wong Zi Heng, Honours (Distinction) in Physics spurred fellow graduands to be confident of the resilience gained from overcoming challenges

Dr John Ouyang Fengcong, Ph.D. in Chemistry, shared that through the programme, he learnt that curiosity is at the heart of science and the way of life

Lim Dah Wei, Honours (Highest Distinction) in Pharmacy, shared how the programme taught him that even the smallest gestures could bring hope into someone's life

A joyous occasion for Class of 2017

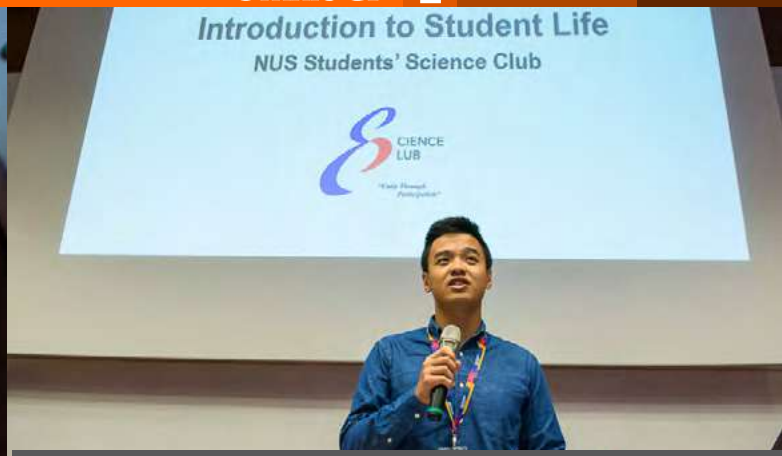
Yearly Key Events

The Faculty's Dean's Welcome Tea 2017

hosted by Dean of Science Prof SHEN Zuowei on 19 July, welcomed close to 700 freshmen. The event comprised talks on the Faculty's academic programmes and other key topics, including the NUS Modular System, the Centralised Online Registration System (CORS) and the modules' bidding process. The non-academic talks covered campus safety, the code of student conduct, internship opportunities and Science Library resources.

Prof Shen said, "Singapore's drive towards a Smart Nation requires graduates with deep knowledge of fundamental science, as well as an interdisciplinary perspective to problems facing the world."

Dean Prof Shen Zuowei introduced the key deanery members, programme directors, as well as the respective heads of departments



Brandon Ng, President of the NUS Students' Science Club, provided the freshmen a glimpse of the student life in NUS

Assistant Dean of Undergraduate Studies Dr Ng Kah Loon's sharing on the Centralised Online Registration System (CORS)

A warm welcome to our Science Family

NUS SCIENCE MERIT SCHOLARSHIPS FUNDRAISING

The Faculty embarked on a strategic initiative, launched at a dinner in April, to raise 100 NUS Science Merit Scholarships. To date, over 30 scholarships have been raised.

We held a fundraising carnival, **Fun Rocks@ LKCNHM**, at the Lee Kong Chian Natural History Museum (LKCNHM) on 11 November. The event was graced by Mr ONG Ye Kung, Minister for Education (Higher Education and Skills) and Second Minister for Defence.

A group photo with Minister Ong Ye Kung

The carnival drew over 1,000 visitors and raised over $700,000 for the scholarship initiative. The tickets sold benefitted many community groups, including Blessings in a Bag, Pathlight School, Bartley Community Care Services, Keat Hong Community Centre, Jurong Spring Community Centre, Young Men's Christian Association (YMCA) and HomeTeamNS.

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Fun and exciting carnival games, activities and live performances

The carnival featured live performances by student bands and games booths with activities that encouraged visitors to learn science concepts in a fun and engaging way, like soap-making, water tattooing, button badge making, etc. Our invited partners, like Siloso Beach Resort, Keat Hong Community Centre Women's Executive Committee and HomeTeamNS and Science alumni groups participated in a mini exhibition.

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Visitors enjoyed the game of "Slide Off" at the Students' Science Club alumni booth, where they tried to slide mugs over the table, which had dry, wet and oily surfaces. This game demonstrated the different amount of friction required to bring a moving object to a halt.

Visitors manoeuvred the DIY claw machine involving water hydraulics between syringes and their pistons, created by the Science Computer-Based Learning Centre alumni group. This activity showed the concepts of energy transfer when controller syringes are depressed / pumped up and three-dimensional movement which is controlled by three separate syringe sets.

At the Bachelor of Environmental Studies alumni booth, visitors had to keep a plastic container afloat while fishing for marine creatures or rocks that could be found in the "sea". The intent of the game was to educate visitors about the types of marine animals and the concept of density.

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See Toh Sheng Jie presented Minister Ong with a personally handmade set of clay dinosaurs

SEE TOH Sheng Jie, Pathlight School student, presented Minister Ong a handmade set of clay dinosaurs as a memento of the event. Minister Ong admired the biodiversity drawings by LKCNHM staff Muhammad Dzaki Bin SAFARUAN and also added his own drawing to mark his visit.

Minister Ong added his drawing to mark his visit

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From left (seated): Dr Tan Eng Liang, Dean of Science Prof Shen Zuowei, Emeritus Prof Huang Hsing Hua, Mrs Huang Hsing Hua
From left (standing) : Mrs Yeo Keng Joon, Mr Yeo Keng Joon, Head of Chemistry Department Prof Richard Wong, Dr Chong Yoke Sin, Mrs Richard Wong, Prof Xu Guo Qin

NUS Chemistry's 88th Anniversary Dinner on 27 October raised over $200,000 for the Chemistry Alumni Fund, which also supports the Huang Hsing Hua Chemistry Merit Scholarship. Alumni, staff and students enjoyed the nostalgic evening at Fullerton Hotel, reuniting and catching up with old professors and friends. The night event was lightened up with three unforgettable performances by Chemistry alumni namely Cantonese Opera by Mrs Joanna WONG and Mr Gary ONG, Piano recital by Dr TAN It Koon and Guitar performance by Dr Hardy CHAN.

Thank you to our benefactors for their generous support!

Prof Richard Wong presented a token of appreciation to Mrs Dorothy Chan, Executive Director, Far East Organization for their generosity in sponsoring the dinner

A group photo of SOW'17 participants

Student volunteers were all smiles as they approached the public for donations

Freshmen Orientation Projects

The Faculty organises a variety of orientation projects for incoming freshmen to get acquainted with, and settle into university life. These include RAG and Flag, Science Camp (SCAMP), Science Orientation Week (SOW) and Science Bash, a yearly beauty-cum-personality pageant.

RAG and Flag, an annual event organised by the National University of Singapore Students' Union, showcases student performances to thank donors for their support and generosity and nurtures the spirit of volunteerism in the Science Family.

This year, more than 430 Science students participated in Flag Day on 8 August. They raised $17, 435.96 for our adopted beneficiary, the Lions Befrienders Service Association (Singapore), a voluntary welfare organisation which cares for seniors. The Science RAG team clinched the Silver award for their performance.

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TAN Yun Yu, Year 2 Life Sciences, RAG37 Committee member, said, "RAG was an enriching journey together with my peers who share the same vision and place where we would like to realise our dreams together."

Jodi LOK Ling Hui, Year 1 Food Science and Technology, RAG37 dancer, said, "Our dancers went through the ups and downs together with much laughter and support for each other. Thank you for being such a warm, welcoming and unique family."

The creative RAG team who built the eye-catching stage props and costumes

The vibrant RAG day performance!

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SCAMP 2017 was held from 13 to 16 June. To cater to the diverse interests of the freshmen, the programmes were customised and included outdoor and indoor games, the widely popular escape room, beach games and gameshows hosted by the NUS Students' Science Club SCAMP Sub-committee.

Through the camp activities, the freshman got acquainted with at least 15 fellow freshmen and nine seniors from their respective orientation groups.

Freshmen noted the detailed planning involved in the props, videos and acting. QUEK Yong Yong said, "The SCAMP concept and storyline were very interesting. The games were also fun, original and creative!"

Bonding during a game at the NUS Sports and Recreation Centre

A participant with a face painted design during the Secret Pal segment

Freshmen took in the sun during a day out at the beach

A group photo of SCAMP'17 Beach Day

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SOW 2017, held from 1 to 4 August, also provided a platform for newly matriculated freshmen to transit into university life through a time of creative games, freshmen interaction within and across different majors, and academic briefings such as the Centralised Online Registration System (CORS), which they had to be familiar in when they bid for modules.

Freshmen also gained insight as to how they could be a part of the various committees and academic societies under NUS Students' Science Club, which would develop a strong sense of belonging within the Science community.

Freshmen enjoyed the myriad of games during SOW'17

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Science Bash 2017

was held on 26 August at Joyden Hall located at Bugis+. Themed *Allure*, it was a night of glamour with exciting games, skits, song and dance performances and even a red carpet walk. The night also saw the crowning of the 2017 Science King and Queen.

A night of games, performances and skits during the Science Bash 2017

NUS Science King and Queen 2017, Ling Ngee Siang and Nicole Ang

INTER FACULTY GAMES

Team Science bagged several medals in the intense Inter Faculty Games (IFG), held from 18 August to 22 September.

The weeks of gruelling training paid off as the Science IFG athletes reaped the fruits of success. The Tchoukball and Women's Volleyball teams took home the championship titles, while the Women's Soccer, Chess and Contract Bridge teams bagged the Silver Medals. The Tennis, Women's Floorball, Badminton and Dota teams received the Bronze Medals.

The victorious Tchoukball team, with the referees, in their first Gold Medal win

The Women's Soccer team bagged the Silver Medal

The Women's Volleyball team brought the Gold Medal back for Science

The Badminton (Mixed) team raised the flag with pride for their Bronze Medal

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The Tchoukball Team's cheer: "One Team, One Dream. Go Science!"

Through the IFG, the Science athletes fostered stronger morale and teamwork, and gained recognition for sacrificing their term break for intensive training.

Clymene LIM, Year 4 Life Sciences, Sports Committee Director, said, "The IFG represented the determination, passion and camaraderie of our athletes in their full glory. Our Science IFG theme '*Invictus Arduis*', or 'unconquered in difficulties' was exemplified by our athletes who showed a strong and indomitable spirit."

HEE Xin Wei, Year 2 Life Sciences, Tchoukball (Mixed) team / Sports Committee Vice-Director, said, "The team for IFG changes every year but the essence of Team Science never changes - the desire and will to put in our best for each other."

The exciting start of the basketball competition

Blazing through their opponents, the Women's Basketball team fought valiantly against their counterparts from the School of Computing

The Women's Floorball competition against the Business Faculty saw moments of high tension

Community Projects

The Faculty offers various volunteering initiatives for students and staff to help and contribute to the community, especially the disadvantaged.

From 19 May to 6 June 17 student volunteers visited Phnom Penh, Cambodia to help underprivileged communities under **Project Angel - Mosaic of Hearts**. At Widow's Island, the students conducted English lessons, installed an irrigation system to support plantation crops and painted the walls of the Vocational Training Centre. At Sa'ang Community Education School, they gave English lessons and helped with construction work. A participant said, "The experience inspired me to put in my best efforts regardless of life's adversities."

The students learnt how to mix cement, which was harder than it looked

The students were guided by local contractors to cement walls

Some of the participants overcame their fear of heights to smoothen the walls

The students cooked for the locals and shared on Singapore's festivals at a cultural night at Sa'ang

The students used props and drawings to conduct English lessons for the Cambodian children

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Project C.A.N. (Collection in Aid of the Needy) XIV provides relief to needy households under the Public Assistance Scheme and Public Rental Scheme. In June and July, some 500 student volunteers distributed food and basic necessities to around 500 households in Chinatown. They also raised funds for supermarket vouchers and worked with the Health Promotion Board to promote healthy living amongst beneficiaries.

Daniel CHONG, Year 4 Statistics, said, "I enjoy being a part of people's lives. I got to interact with people from different walks of life and understood our community better." Sabrina QUAK, Year 3 Pharmacy, said, "Volunteering is about having the heart to serve the less fortunate. Every action counts."

Student volunteers went door to door to deliver food packs to the beneficiaries and interacted with them

Student volunteers encouraged supermarket shoppers to donate food items for the beneficiaries

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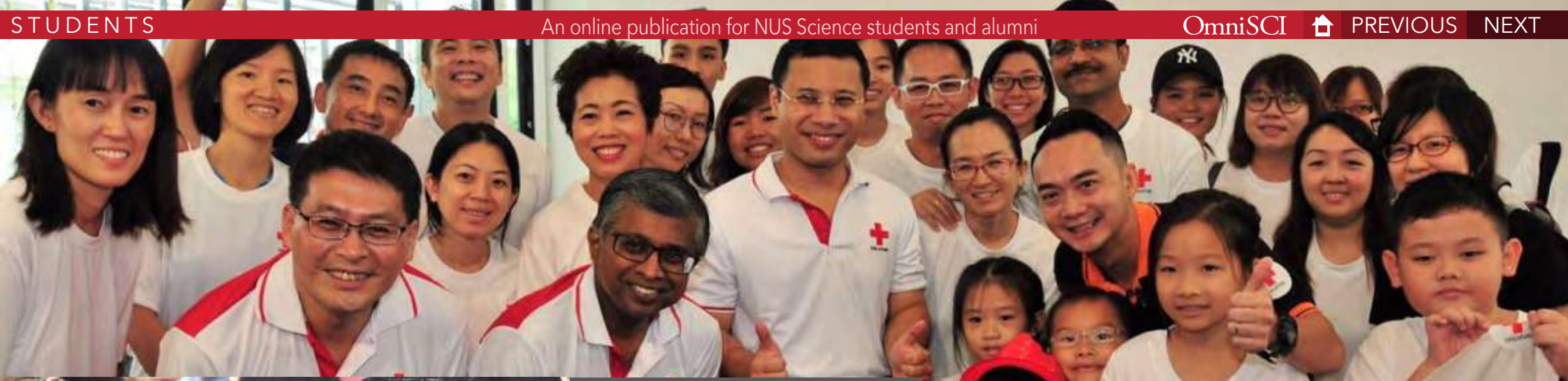

Volunteers got to pose for an exclusive photo with Mr Desmond Lee, Minister for Social and Family Development,and the Second Minister in the Ministry of National Development; and Mr Benjamin William, CEO of Singapore Red Cross

Student volunteers interacted with the migrant workers and provided a listening ear to issues they face in a foreign land

Community Chest Heartstrings Walk 2017 carnival

The Faculty organised activities for **NUS Day of Service** on 9 September to support the tradition of giving back to society. Our partners, volunteers and beneficiaries came together to promote inclusivity at the Community Chest Heartstrings Walk 2017 graced by Mr TAN Chuan Jin, former Minister for Social and Family Development. More than 60 students, staff and alumni participated in the Fun Walk, comprising booth games and activities, to raise awareness of the special needs community. The proceeds went to more than 600 beneficiaries.

Together with Healthserve and the Straits Times School Pocket Money Fund, students organised games and sports for 35 migrant workers at Mandai Westlite Dormitory.

Food Science and Technology alumni participated in World First Aid Day 2017 organised by Red Cross Singapore, where they distributed emergency packs to beneficiaries at Taman Jurong Community Centre.

Singapore Frontier Challenge

Singapore Frontier Challenge (SFC) 2017, which was spearheaded by the NUS Physics Society, concluded on 30 September. The finale was held at partner Singapore Power (SP) Group's headquarters and showcased the work of the top five finalist teams.

Team SAVEZ at the debate knockout stage

The inaugural competition focused on alternative energy solutions. It aimed to encourage tertiary students to develop innovative solutions to address pressing environmental issues in Singapore. The competition drew participants from NUS, the Nanyang Technological University (NTU) and the Singapore University of Technology and Design (SUTD).

SFC 2017 encouraged participants to form interdisciplinary groups to generate diverse ideas. The Faculty's Team SAVEZ was amongst the finalists. Team

Participants attended various software and hardware workshops held in conjunction with the competition

SAVEZ comprised three Physics students SEAH Zong Long, KOH Jun Hao and CHAN Si Min and two students from the Faculty of Engineering, Ernst CHEOK and UDAYAGIRI Vishnu Saran.

Drawing inspiration from photosynthesis where plants convert sunlight into energy organically, Team SAVEZ developed a solar cell fabric and a three-dimensional (3D) transparent solar cell under the guidance of Dr TAN Swee Ching, NUS Department of Materials Science and Engineering; and Mr WANG Aimin, Team Mentor, SP Group. They emerged second runners-up in the finals.

The various teams' projects, ranging from protein-based solar cells to rainwater harvesters, was well-received by the panel of judges, which included SP Group's CEO Mr WONG Kim Yin, their senior management, as well as Dr YEO Ye and Dr LIU Mei Hui from the Faculty.

The top five teams from the debate knockout stage in August 2017 were each assigned a mentor from SP Group, who provided resources and guidance for their prototypes. Participants also attended energy-related talks and workshops.

Participants welcomed the opportunity to mingle with SP Group staff. Mr Wong Kim Yin, SP Group CEO, discussed the potential of their ideas and advised the teams on possible collaboration with SP Group to develop their projects.

LAI Mingrui, Year 3 Physics student and SFC 2017 Project Director, said, "We hope that through the competition, more students will take an interest in current and future issues faced by Singapore."

The SP Group granted $23,000 in sponsorships to support the competition.

Singapore Frontier Challenge Organising Committee
From left to right: Neo Jie Xin, Tricia Wong, Lai Ming Rui (SFC 2017 Project Director), Gabriel Kam, Shin Zher Sin and Ryan Quek

Team SAVEZ emerged 2nd runner-up at the finale
From left to right: Mr Wong Kim Yin, CEO, SP Group; Koh Jun Hao (Physics); Seah Zong Long (Physics); Ernst Cheok (Engineering); Chan Si Min (Physics); Udayagiri Vishnu Saran (Engineering); and Mr Wang Aimin, Team Mentor, SP Group

Singapore Frontier Challenge's first contact event on 17 June

Science Safety Day and Week

Prof Lu Yixin, Vice Dean for Graduate Studies and Safety, welcomed participants to the Safety Day event

Science Safety Day and Week is an annual safety event organised by the Faculty to create safety and health awareness among faculty members, staff and students.

The four research laboratories-based departments, together with the Faculty's Safety and Infrastructure Unit, organised various safety activities to support the theme "Enhance our Safety and Health Culture", during Science Safety Week on 25 to 29 September.

Science Safety Day on 26 September featured exciting activities such as safety competitions, talks and a carnival.

Prof Peter Ho, Deputy Dean of the Faculty, delivered the opening address

Some of the award winners

A prize presentation ceremony was held for the 2017 winners of the Faculty Housekeeping Campaign for laboratory maintenance and the Excellent Safety Lead Awards for laboratory safety for staff and students.

At the carnival, the exhibition booths set up by NUS' Office of Campus Security and Office of Facilities Management showcased campus security and sustainable energy solutions. Various organisations also displayed their companies' laboratory products.

Prof Christina Chai, Head of Pharmacy (left photo), and Mr Saravanan s/o Gunaratnam, Deputy Director, Head of Safety and Health Management Division of the Office of Safety, Health and Environment (OSHE) (right photo), shared on practical aspects of cultivating a safety culture at the workplace

Participants took part in games like "Wheel of Safety", "Know Your GHS" (Globally Harmonised System of Classification and Labelling of Chemicals) and "Safety Numbers Quiz", which tested different aspects of safety knowledge. There was also good participation in the "BooBoo & RaRas" competition which highlights good and bad safety practices through quirky comics or captioned photos.

Mdm LIEW Chye Fong, Department of Biological Sciences, said, "We get to learn about different safety equipment and gadgets in the market to address safety and health hazards in laboratories and offices."

Dr REN Minqin, Department of Physics, said, "The talks included useful information to ensure a safe working environment. The games were fun and informative with safety knowledge delivered in an enjoyable way!"

View the photo gallery **here**

Mr Danny Toh, Senior Associate Director, Safety and Health Division, OSHE, shared on excelling in department safety and health management systems

Mr Benjamin Tan, Counselling Psychologist, University Health Centre, shared on how to manage stress

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Some of the exhibition booths at the carnival

Staff and students participated enthusiastically at the games booths

Participants had an enjoyable and enriching time at the Safety Day event

Think Tank Dialogue

Prof Chew highlighted key industries employing our graduates such as research, healthcare and education, and expected median salaries (from the Graduate Employment Survey 2016)

Students listened intently to Prof Chew's sharing

On 21 July, the Faculty organised a Think Tank dialogue session for Life Sciences students in collaboration with the Academics Affairs department of the 46th Life Sciences Society.

The dialogue served as a platform to enhance Life Sciences graduates' employability after graduation, by providing insights into their fields of interests, attributes and skills sought by employers and the diverse career opportunities open to them, including non-traditional careers in exciting or new sectors.

Although the session was intended primarily for 3rd and final year students, 2nd year students were welcome to attend too, to gain early guidance in planning their future careers.

Prof CHEW Fook Tim, Vice Dean of Undergraduate Studies and Student Life, imparted invaluable advice on how to approach job applications, the mean time taken for graduates to receive their first job offers and our graduates' ventures into more diverse jobs. Encouraging students to step out of their comfort zones to experience different fields, Prof Chew noted that students who did not limit themselves would eventually attain career fulfilment.

The dialogue session was followed by a Question-and-Answer session. There were wide-ranging queries, including the importance of gaining internship experience, from the Undergraduate Professional Internship Programme during the semester and the Final Year Internship, to the range of job opportunities for students specialising in Environmental Biology.

A Year 4 Life Sciences student said, "Prof Chew had an interesting take on how students should not blindly follow norms and to be proactive in planning our own career paths."

Alumni-Student Networking Evening

Mr Ivan John Clement, Consultant and Data Scientist at QuintilesIMS, shared his experiences in the growing data science sector

Mr Nicholas Tan shared his teaching experiences with the students

The Alumni-Student Networking Evening was held on 20 October. More than 120 Science undergraduates, postgraduates and young alumni participated in this event organised by the Faculty in collaboration with NUS' Centre for Future-ready Graduates.

21 alumni mentors from diverse industries, ranging from the arts to data science, research and food entrepreneurship, shared their career experiences and interacted with the students during the networking session.

Year 1 student SEAH Jun Long said, "Hearing the conversations of others was helpful in gaining an understanding of my own interests and aspirations."

Mr Nicholas TAN, Ngee Ann Polytechnic lecturer and an alumni mentor, said, "The event was well-organised. I enjoyed sharing my experience with the students."

View the photo gallery **here**

Alumni GO OUT

As part of new initiatives to strengthen the Science alumni network, the Faculty organised special outdoor excursions on a quarterly basis for alumni to rediscover Singapore's attractions.

On 10 June, close to 40 science alumni visited the **St John's Island National Marine Laboratory** (SJINML) where they learnt about marine conservation efforts, as well as the island's history and biodiversity from Mr CHUA Sek Chuan, SJINML Outreach and Education Senior Manager. New friendships were forged as the alumni interacted with each other during the facility tour and nature walk.

Chemistry alumnus TEE Pok Siang said, "The tour was insightful, with detailed explanations on the exhibits and research done by the institute."

On 7 October, the **Peranakan Museum**, the first museum of its kind in the world to showcase Peranakan artefacts, hosted more than 20 science alumni for an afternoon of Peranakan culture and tradition.

Museum docent Mr Thomas PREMOJ guided the tour and gave greater insights on Peranakan history. Ending on a sweet note, alumni also tasted some traditional Peranakan *kueh-kueh* and snacks.

Alumni Industry Networking Sessions

Various networking sessions were organised by the Faculty to update Science alumni on industry trends, developments and career opportunities. These sessions included science-focused industries and recruitment agencies.

On 4 August, the **inaugural session with BLOCK71 Singapore and NUS Enterprise** delved into Singapore's startup ecosystem and entrepreneurship community. Life Sciences alumni HEW Joon Yeng and Lyon LIM shared their experience as founders of Pigeonhole Live, a real-time question-and-answer tool and how they succeeded in making it a staple at conferences worldwide.

BLOCK71 Singapore's office tour gave insights to alumni aspiring to be entrepreneurs, while Startup Weekend introduced entrepreneurship opportunities through events. The session drew 50 alumni.

Networking session with BLOCK 71 Singapore and NUS Enterprise

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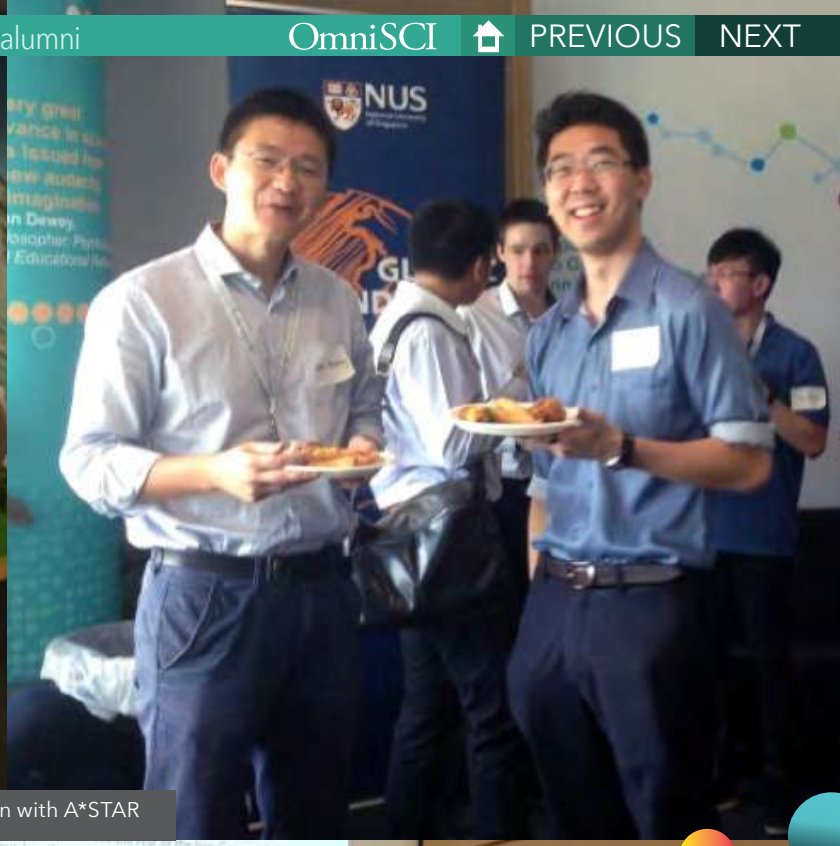


Networking session with A*STAR

On 14 September, our alumni Benjamin TOH, Michele GOH and Kenneth TAN shared on their career journeys at **Agency for Science, Technology and Research** (A*STAR) with more than 40 alumni. Thereafter, the alumni toured FusionWorld, which showcases award-winning inventions and industry-collaboration prototypes created by A*STAR's research institutes.

One of the participants, WANG Hui said, "We learnt more about A*STAR's technology development efforts."

Over 20 alumni attended the **Young Educators in Science (YES) sharing and Ministry of Education networking session** on 26 October, which focused on science education and outreach.

Mathematics Year 3 student Christopher TAN shared on the YES Mathematics Focus Group's efforts to generate educational outreach materials and how the team sieved through many ideas before deciding on activities related to game theory, group theory and celestial mechanics.

YES alumnus Ivan LIEW then discussed his internship at a computer games development company, where he leveraged on his science communication skills for effective workplace interaction. He said, "We need to stand in the shoes of others to get a vantage view of how to communicate an idea."

YES members also prepared a chemistry demonstration using hydrophobic ("water-hating") shaving cream and coloured dye to make beautiful and unique hydrophilic ("water-loving") paper prints. The prints showed how daily items can be used artistically to communicate science.

Networking and sharing session with YES and Ministry of Education

Yearly Alumni Events

The Science Reunion Dinner 2017

was held on 22 July at the Amara Hotel. Organised by NUS Students' Science Club Alumni Relations Sub-Committee, the annual dinner is a celebratory get-together for the graduating class, and their juniors and seniors.

For the theme *Oscars: The Show of a Lifetime*, 68 students and alumni were dressed to the nines as their favourite Oscars'-winning actors. Prizes were presented to the best-dressed. There were performances by Year 3 Life Sciences student Alex LEE and NUS Voices as well as games and a lucky draw.

CONTINUE >>

The Guest-of-Honour, Vice Dean for Undergraduate Studies and Student Life, Prof Chew Fook Tim congratulated the graduating cohort in his welcome address

It was a great evening of catch up with friends

The Graduating Class of 2017 from the Department of Statistics and Applied Probability

Graduates and alumni penned their gratitude and appreciation for each other on a star-shaped card

Guest performance by Alex Lee and his partner

Guest performance by NUS Voices

Game segment: Who has the best pick up line?

Game segment: Who is the next top model?

Best Instagram photo for the night

Popping the party poppers to celebrate the end of an eventful night

Yearly Alumni Events

Bukit Timah Homecoming 2017

The Faculty hosted more than 80 Science alumni from different disciplines and cohorts at the Bukit Timah Homecoming 2017 on 1 July. The event was graced by NUS President Prof TAN Chorh Chuan and included fund-raising activities to help financially needy students. There were country music performances by Matthew and the Mandarins for the *Wild Wild West* theme, and a song and dance session by the NUS Alumni Sing-Along.

CONTINUE >>

Science alumni and staff at Bukit Timah Homecoming 2017

Yearly Alumni Events

Kent Ridge Alumni Family Day 2017

On 19 August, some 5,000 alumni, students, staff and their families flocked to University Town for Kent Ridge Alumni Family Day 2017. The Faculty's Forensic Science Alumni Group booth showcased the *CSI: Crime Scene Investigation* experience through mock crime scenes and fingerprint lifting. The event ended with an outdoor movie screening of the animated film, *Trolls*.

The instant photo booth was a crowd-magnet


The alumni and their families enjoyed picnics on Town Green

Reconnecting with old friends


Guests participating in the fingerprint lifting activity by the Forensic Science Alumni Group

Eric LAM
Amdon Consulting

Eric LAM, who graduated in Life Sciences (First Class Hons) in 1997, founded Amdon Consulting Pte Ltd in 2001. Amdon specialises in ePublishing and eLearning design.

The digital age has reshaped the education industry in a big way. However, the learning population may not have internet access for digital content. To address this need, Amdon pioneered PageWerkz, a proprietary e-learning platform which enables offline learning, where content can be viewed on computers and mobile devices without internet access. PageWerkz was the result of a collaborative effort with educators, publishers, graphic artists and technology experts.

Mr Lam said, "Our vision is to be the world's largest operator of a wholesale eLearning marketplace that connects publishers, course providers and learners worldwide in a seamless ecosystem."

Amdon has been growing steadily since its inception. It's PageWerkz ecosystem now reaches more than 10 million users worldwide. It has trained over 20,000 professionals and developed numerous award-winning interactive textbooks, educational games and teaching courseware which has been adopted by more than 500,000 teachers and students worldwide. PageWerkz's interactive textbook model has gained international recognition and won multiple awards, including the Singapore Prestige Brand Award (2012) for Promising Brand.

It also collaborated with Ted-Ed to produce an educational feature that has garnered more than half a million views today.

Amdon now has a presence in more than 10 countries. In the future, it plans to roll out an eBook application for a comprehensive gamification environment, complete with analytics and personalised learning technologies, that is independent of the internet.

THE SCIENCE BEHIND OUR SCIENTISTS

The Faculty of Science is at the forefront of cutting-edge scientific research.

Our researchers are realising this vision in their various fields by breaking new ground and gaining acclaim for their work.

Some of our researchers share their achievements, the challenges and rewards of their work and their plans moving forward.

CONTINUE >>

Prof ZHANG De-Qi

Department of Mathematics

Prof Zhang has authored and co-authored many impactful papers. In his recent papers, he and his collaborators solved Japanese mathematician Shigeru IITAKA's 46-year-old problem in birational geometry, with the discovery of a new method – the generalised Minimal Model Programme (MMP), among other research breakthroughs to problems that have been unanswered for decades. In Dec 2016, he was invited to present his research findings at The Legacy of Emmy Noether and Gottingen Mathematics Conference, held in Sanya, China. Prof Zhang was also conferred the Osaka University Global Alumni Fellow title in June 2016 and the Faculty of Science Outstanding Scientist Award 2016 for his research accomplishments.

"I ventured into algebraic geometry as this field is relevant to many real-life happenings which are subject to various parameters or variables. In this field, we are guided by geometric visualisation and algebraic rigour to prove/confirm discoveries. We can also predict or simulate future possible occurrences by solving these equations. From the perspective of pure mathematics, we work towards confirming the existence of a solution and structure of the solutions space.

Most equations can be approximated by polynomials, the focus of my research. The solution space of polynomials has a nice geometrical structure: it can be embedded into the compact projective space P^n (the union of the complexified Euclidean n-space C^n with a boundary at infinity). One purpose of my research is to find a minimal such n to put our solution space in P^n. The smaller the n is, the simpler to handle the situation (since there will be lesser coordinates involved).

This field is a challenging one, requiring understanding of many mathematical areas. For instance, semi-definite programming can be formulated and solved with algebraic geometry. It is also interdisciplinary, interacting with theoretical physics. Physicists can accurately predict the number of rational curves in a Calabi Yau quintic space (a solution space of a degree-5 polynomial equation) by using the duality principle in physics. Mathematicians complement this by providing rigorous proof of these predicted formulae.

In investigating solutions spaces or complex spaces, we need to predict certain principles or theorems. This requires experience and rigorous proof. On various occasions, I know certain predictions are true but I could not provide convincing proof. One also has to discover new theories, the process of which could be more enjoyable (and also painful) than the proven theorems themselves.

Nevertheless, I find great satisfaction, for instance, when a decade-long conjecture is solved. The solutions could be used in other areas of mathematics, like number theory, i.e. the structure of integers or the relationship amongst the numbers, etc.

I hope to extend beyond complex numbers, to work on real numbers which are strongly connected with semi-definite programming and which offer immediate applications in solving real-life problems.

To succeed as a researcher, we should be aware of our strengths and weaknesses and find the niche areas of our interest. Deep results take time but have lasting effect."

5TH ASIA ENVIRONMENT LECTURE

The lecture was chaired by Prof Tommy Koh, Ambassador-at-large at the Ministry of Foreign Affairs, who also chairs the Advisory Committee for the APCEL and the NUS MEM programme

The 5th Asia Environment Lecture was held on 3 November. The speaker was Ms Patricia ZURITA, Chief Executive Officer of Birdlife International, who is a world leader in global biodiversity conservation.

Ms Zurita focused on how birds and their migratory paths illustrate a common path to conservation and peace.

Environmental habitats such as coasts, wetlands and grasslands are increasingly being destroyed by land reclamation, while climate change is altering our landscape and weather. These conditions make it difficult for migratory birds to make their yearly journey across borders between their breeding and wintering grounds. As a result, many of the world's migratory bird populations are now declining.

Ms Zurita shared that countries need to work together to save migratory birds from extinction, as there is little value in protecting birds in one country, if they are doomed to die from exhaustion in the next

Participants learnt that working together across borders can effectively build and maintain a healthy planet. Environmentalists and stakeholders working for nature locally are brought together and connected nationally and internationally through Birdlife International on long-term conservation efforts.

The event drew more than 150 participants from NUS, members of the public as well as environmental practitioners, activists, government officers, researchers, educators and students from other institutions.

This lecture series is a joint effort by the NUS Bachelor of Environmental Studies (BES) programme, Asia-Pacific Centre for Environmental Law (APCEL) and NUS Masters of Environmental Management (MEM) programme.

sustainABLE NUS Showcase

The Faculty's students and staff from the Faculty of Science explained their research and educational programmes to Minister for the Environment and Water Resources Mr Masagos ZULKIFLI at the inaugural exhibition on 29 and 30 August. The event showcased key NUS initiatives to create a sustainable model city of tomorrow.

The educational programmes segment featured the Bachelor of Environmental Studies (BES) programme, which grooms change agents who create solutions for today's environmental issues, and activities like the nature guiding group BES Drongos.

On the research front, NUS hosts the $25 million national Marine Science Research and Development Programme (MSRDP) to study the island's marine ecosystems. Several key (MSRDP) projects were featured.

These included Biological Sciences' Prof HUANG Danwei's project on the adaptation of coral reefs to environmental changes; Prof Peter TODD's project to engineer Singapore's seawalls for greater habitat complexity; Prof Darren YEO's collaboration with PUB, the National Water Agency, to enhance reservoir sustainability and restoration in Singapore; and Profs Rudolf MEIER's and Hugh TAN's possible food waste project for food security transformation in Singapore.

Other projects included eco-efficient waste treatment and monitoring technologies, bio-economic modelling towards sustainable development and the generation of free renewable energy from carbon dioxide and water.

Prof Huang Danwei's research on coral reefs helps Singapore understand the complex issues at heart in the interplay between shipping activities and biodiversity preservation along Singapore's coastline

Electrofishing

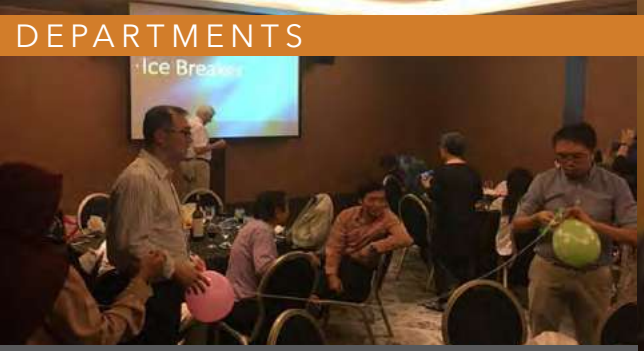
Invertebrate sampling

Plankton sampling

Fish tagging

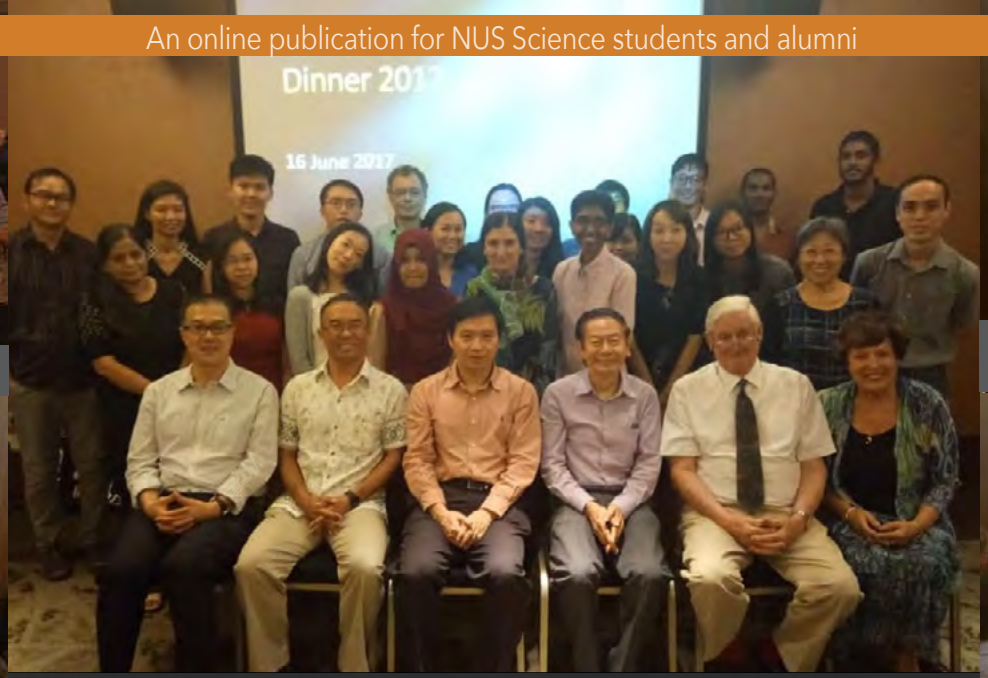
Prof Darren Yeo's lab's research on aquatic food webs can help Singapore develop potentially cheaper and more ecologically-friendly ways to manage or improve the raw water quality in our reservoirs for enhanced sustainability

Prof Peter Todd's team has designed, built and installed complex habitats that help bring back biodiversity to our seawalls



Guests getting ready to launch the balloon rockets

Prof Lu Yixin, Vice Dean, Graduate Studies, affirmed the valued relationship with ANU



Science Communication Dinner

On 16 June, the M.Sc. Science Communication programme held its annual dinner in conjunction with the visit of Profs Sue STOCKLMAYER, Professor of Science Communication, and Mike GORE, Adjunct Professor, from the Australian National University (ANU).

The evening began with a fun game of balloon rockets. After a buffet spread, guests formed four teams to brainstorm science demonstrations using simple tools and items at the dinner venue. The demonstrations included musical and percussion glasses, balloon-lifted glasses and cups, turbo plates and glasses, balancing forks, telephone cups, catapults and floating ping pong balls, among others.

Ms TAN Ngee Tiang, a programme alumna, said, "The speakers truly demonstrated how to make science understandable in simple and fun ways. Their sharings took on different forms, even through music and poems."

The M.Sc. in Science Communication programme is jointly offered by ANU and NUS.

Prof Leo Tan, Director, Special Projects, stressed the importance of communication and continual learning

Prof Liou Yih-Cherng, Director, Science Communication programme, shared his team's vision to improve and develop the programme

Zhang Mila, a current M.Sc. Science Communication student, playing a melody using water glasses

Rakhita Manchanayaka beating to his "glass drums"

Gravity defying cups with the help of an inflated balloon by Ms Savita Sharma from Science Centre Singapore

Balancing forks!

Inaugural Nanomedicines Workshop

The practical sessions gave participants hands-on experience on various nanomedicine techniques

CONTINUE >>

Participants attended the lectures in a classroom environment

Speakers and participants at the Nanomedicines Workshop

The Department of Pharmacy organised the inaugural Nanomedicines Workshop on 12 and 13 October. The two-day workshop blended classroom learning with expert panel sessions and hands-on training on the latest advances in nanomedicine and its formulation.

33 participants from diverse industries, such as educational institutions, regulatory bodies, pharmaceutical and investment companies, attended the lectures by nine local and overseas speakers.

The lectures were conducted in a classroom environment, with active discussions on topics such as drug delivery applications of liposomes, nanovesicles for natural product delivery, nanodiamonds as well as the safety and regulatory aspects of nanomedicine. Following the lectures, the participants attended practical sessions where they were able to translate what they had learnt and experienced first-hand how to assemble liposomes. This familiarised them with various nanomedicine characterisation techniques.

The event brought together expert speakers from Singapore and abroad. These included Prof Rachel EE, Prof Gigi CHIU and Prof Giorgia PASTORIN, NUS Department of Pharmacy; Dr Edward Kai-Hua CHOW, Cancer Science Institute, NUS Pharmacology; Dr Ann-Marie CHACKO, Head, Laboratory for Translational and Molecular Imaging, Cancer and Stem Cell Biology Programme, Duke-NUS Medical School; and Dr Desmond HENG, Scientist, Institute of Chemical and Engineering Sciences from Singapore.

The overseas speakers included Dr Matthias WACKER, Head, Pharmaceutical Technology and Nanosciences, Fraunhofer Institute for Molecular Biology and Applied Ecology, Germany; Prof WONG Tin Wui, Director, Non-Destructive Biomedical and Pharmaceutical Research Centre, Universiti Teknologi MARA, Faculty of Pharmacy, Malaysia; and Dr SEAH Ling Kuan, Project Leader, Max Planck Institute for Polymer Research, Germany.

Participants gave positive feedback that they gained more in-depth knowledge on nanomedicine. The event was sponsored by Anton Paar Singapore Pte Ltd, Abbott Laboratories GmbH, Esco Micro Pte Ltd and Bio-Rad Laboratories.

9TH Electronic Structure and Processes at Molecular-Based Interfaces

Prof Andrew Wee, Vice President (University and Global Relations), who co-heads the local organising committee, addressed workshop participants

Extended panel discussions enabled broader discussions of developments in the various fields

The Departments of Chemistry and Physics jointly organised the 9th Electronic Structure and Processes at Molecular-Based Interfaces (ESPMI9th) from 8 to 10 November.

The event provided a platform to exchange knowledge on the latest cutting-edge research and new ideas. It also built collaborative ties and strengthened friendships.

This year's workshop covered the fundamentals and applications of electronic structures and processes at molecular interfaces. The topics included organic-organic and organic-inorganic interfaces; novel emerging experimental, computational and theoretical aspects in electronic structure; charge injection and transport; device interface

CONTINUE >>

Participants viewed the poster abstracts

Presentation of the Best Poster awards

physics and chemistry; functional interlayers; and morphological/molecular dynamic issues central to these phenomena, which are relevant to organic semiconductor and molecular electronics.

The workshop brought together some 100 fellow scientists and faculty members from various universities from Asia, Europe and the United States of America (USA).

In addition to 29 oral presentations, 49 poster abstracts were also submitted. Nine poster abstracts were awarded Best Poster by *ACSNano*, a scientific journal by the American Chemical Society.

Previously, successful workshops were organised at Nagoya, Japan (1999), Bad Honnef, Germany (2003), Nagoya, Japan (2006), Princeton, USA (2008), Chiba, Japan (2010), Karlsruhe, Germany (2011), Rehovot, Israel (2013) and Arizona, USA (2015).

Participants visited the Flower Dome and Cloud Forest conservatories at Gardens by the Bay

Networking between the sessions

3RD ASEAN Workshop on Conservation Biology

The Department of Biological Sciences (DBS) organised the 3rd ASEAN Workshop on Conservation Biology from 20 to 21 November. This workshop is part of a collaborative research effort to gather expert input for Southeast Asia's sustainability and biodiversity conservation research directions and strategies.

Southeast Asia is facing a biodiversity crisis, amidst fast-growing economies and populations. Agricultural expansion, urbanisation, infrastructure development and growing consumption are potential threats to the region's biota. In addition, nearly all its land and water lie entirely within four biodiversity hotspots. Many globally unique species could go extinct.

Through this workshop, DBS aimed to identify research priority focus areas in Southeast Asia. These key research questions would generate active deliberation and better research cohesion, as well as align conservation goals with policy planning. By bringing together experts with diverse perspectives and specialist knowledge of these regional issues, DBS hopes to further ASEAN universities' educational and research efforts in these areas.

Presentations by invited experts

Participants engaged in meaningful discussions during the presentations

Participants delved into further sharing during the breakout sessions

Graduate Students' Retreat

Prof Yu Hao emphasised the importance of DGSS, highlighting its growth over the years and the importance of being a part of the "close-knit family"

DGSS President Karthikbabu Kannivadi Ramakanth shared on DGSS' plans for the year at the retreat

The Department of Biological Studies (DBS) Graduate Students' Society (DGSS) held its fourth annual retreat on 29 September at the Ngee Ann Kongsi Auditorium in University Town.

The retreat was attended by about 80 students and aimed to inspire the graduate students to make a difference in the department by actively exchanging views and building relationships with students from other laboratories.

The retreat kicked off with an address by Head of Department, Prof YU Hao and sharing by DGSS President Karthikbabu KANNIVADI RAMAKANTH.

During the retreat, a focus group session was conducted for participants to discuss the key concerns faced during their candidature. This was followed by a "Year-by-Year" session which provided an advisory platform for students to benefit from the experience and perspectives of their seniors and professors on practical issues.

CONTINUE >>

Graduate students got to know one another at the team-building activity

The programme concluded with a team-building activity which gave students the opportunity to get to know one another better and build links between different laboratories.

DGSS President Karthikbabu, Year 2, said, "The retreat helped the students to be a part of our close-knit family of researchers and to discuss their concerns, share ideas and relax."

Ian CHAN, Ph.D. Candidate, Year 4, said, "The retreat was an invaluable means for us to share pressing concerns with the department's faculty and administration members. It was also an enjoyable way to meet graduate students from other laboratories."

Honouring the Late

Lucy WAN

It is with deep sorrow that we bid farewell to an irreplaceable teacher, scientist, colleague and friend - Prof Lucy WAN. Prof Wan passed away peacefully on 1 October 2017.

Widely respected as a trailblazer of the Faculty of Science, Prof Wan helped nurture generations of scientists and pharmacists.

Prof Wan is noted for her numerous pioneering achievements in her 40-year academic career. As an alumna of NUS, she contributed significantly to pharmaceutical education and research. She was the first person to be conferred a Ph.D. in Pharmacy at NUS and the first Singapore graduate to be appointed Professor of Pharmacy and Doctor of Science.

She served as Head of NUS' Pharmacy Department from 1988 to 1994. The Pharmaceutical Society of Singapore established an award in 1995 in Prof Wan's name to honour her contributions to the field in Singapore.

Department Enrichment Camps

Every year, our departments organise enrichment camps for secondary school and junior college students to understand their respective academic programmes and their applications in real-world situations.

CONTINUE >>

Department Enrichment Camps

Statistics Enrichment Camp

The Statistics Enrichment Camp, held on 2 June, included talks on the academic programme and other topics, such as the diversified job scopes of statisticians and the correlation between stable marriage problems and kidney transplant allocation. Students participated in intriguing hands-on activities, like a lie detector test which was constructed with Seeed Grove heart rate sensors and other electrical components.

Queenstown Secondary School teacher Mr A CHANDRAGUS, said, “Perfect fit is a key issue in the economics of supply and demand. How it can be forged mathematically through a Gale-Shapley matching algorithm is stunning.”

Students had fun during the hands-on activities

Selected students had the opportunity to take a lie detector test

CONTINUE >>

Hands-on activity on circuit analyses

Department Enrichment Camps

Students learnt how to operate a telescope

A visit to the Centre for Quantum Technologies

Physics Enrichment Camp

The Physics Enrichment Camp, held from 6 to 9 June, drew 490 students. The camp showcased how physics permeates everything, from our daily lives to natural physical phenomena. It included a series of talks, a quiz, customised activities based on students' diverse interests and a laboratory tour.

A participant said, "The speed of sound and Newton Cradle activities were eye-openers that clearly demonstrated physics concepts."

Students had fun discovering the science behind unbreakable ice

CONTINUE >>

Department Enrichment Camps

Mathematics Enrichment Camp

More than 100 students attended the Mathematics Enrichment Camp on 19 August. The event comprised short talks on the academic programme, as well as unusual topics, like the topology and geometry of closed surfaces, numbers as fundamental concepts of mathematics and simple models to analyse big datasets.

Prof Victor Tan, Assistant Head of the Department of Mathematics, introduced the department's undergraduate programmes

Prof Tan Ser Peow shared on the topology and geometry of closed surfaces

Dr Wang Fei spoke on how numbers are the most fundamental concepts of mathematics

Dr Vincent Tan explained simple models of big datasets from a statistical perspective

The students were elated to receive prizes from participating in the interactive quizzes during the programme

NUS CHEMISTRY WEEK

The teachers enjoyed the experiments and classroom teaching discussions

Prof Richard Wong spoke at the event opening

NUS Chemistry Week was held from 1 to 9 June. The week-long event comprised fun-filled activities, including the NUS-Dow Surprising Science Teachers' Workshop, Circuit Chem Practical Challenge, Rapid Chem Challenge, Chem Day Camp, the 24th Chemistry Communication Challenge, and the Surprising Chemistry Workshop.

Chemistry Week was open to the general public, teachers and students from secondary schools, junior colleges, the Institute of Technical Education and the polytechnics. More than 200 students from 48 schools participated.

At the opening, Prof Richard WONG, Head of NUS Chemistry, shared how the department showcased new and fun concepts in chemistry, for the public to gain a better understanding of the science behind daily life.

The inaugural NUS-Dow Surprising Science Teachers' Workshop, organised together with Dow Chemical on 1 June, was tailored for teachers to explore scientific ideas and materials for practical use in classroom teaching. The workshop included hands-on activities at NUS and a visit to Dow Performance Silicones Laboratory featuring industrial products' demonstrations.

CONTINUE >>

LI Xuanjun from Temasek Junior College said, “It is a good workshop, allowing teachers to gain exposure to what Dow Chemical and the industry are doing.”

Students working on a practical challenge in Circuit Chem

The Circuit Chem Practical Challenge, a competition open to upper secondary, junior college and polytechnic students, saw teams of two participants racing to complete practical chemistry problems at multiple stations. The tasks covered the four main aspects of Chemistry - Inorganic, Organic, Physical and Analytical.

Rapid Chem, a fun game with quiz questions that tested students’ knowledge on chemistry, was followed by a tour of the teaching and research laboratories. Participants also experienced the excitement of chemistry through hands-on laboratory activities at the non-residential Chem Day Camp.

Alumni and their families had fun at the Science of Cooking and Molecular Gastronomy workshop

The biennial Chemistry Communication Challenge challenged competitors to describe the important role of chemistry in addressing the theme “C3 - Climate Change & Chemistry”. The event provides secondary school students nationwide an introduction to advanced topics in chemical sciences and their vital role in industry and society.

Students had a fun-filled day at the Chem Day Camp workshop

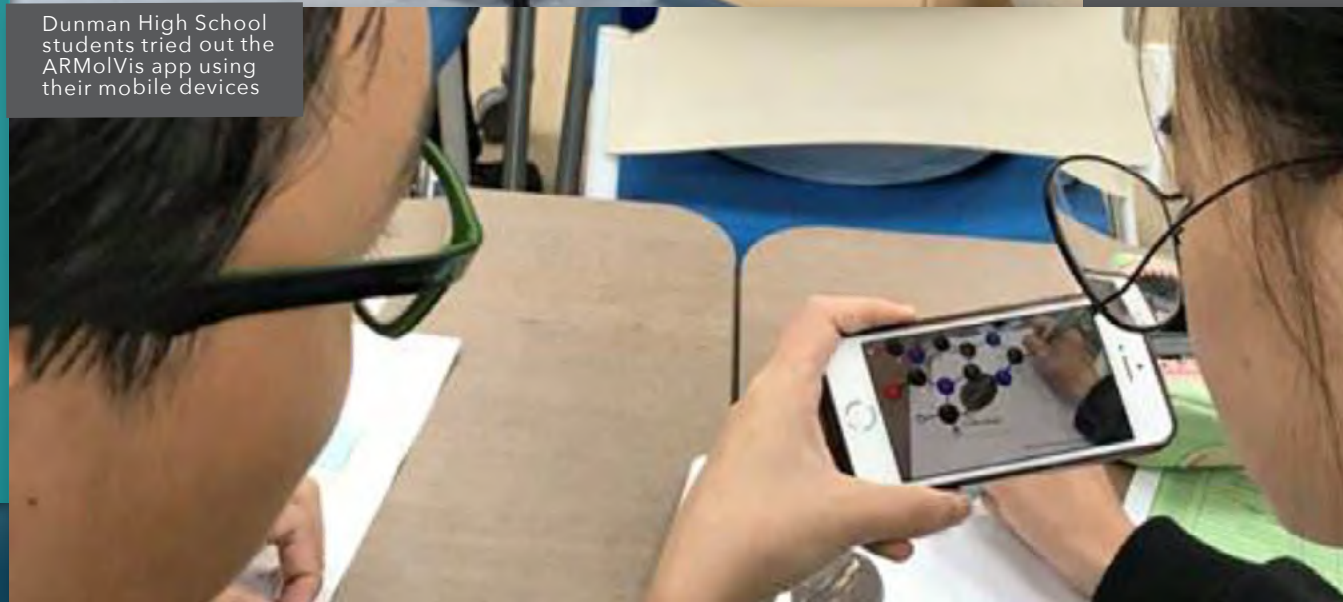
JC Afternoon Workshops

The Department of Chemistry conducted a series of half-day workshops for junior college (JC) students on 5, 12 and 26 July. Over 180 JC students and teachers from Meridian JC, Anderson JC, Temasek JC, Serangoon JC, National JC and Dunman High School participated.

The workshops enabled participants to experience undergraduate life at NUS Chemistry. Various interesting activities were conducted. These included hands-on opportunities of the "ARMolVis" application to discover the chemical structure of everyday products, a chemical experiment at one of the Chemistry teaching laboratories and a visit to iconic spots on campus.

National JC students had fun touring campus and University Town

Serangoon JC students listened intently to the briefing prior to the "separation of additive in soft-drink" hands-on experiment at the Analytical Teaching Laboratory

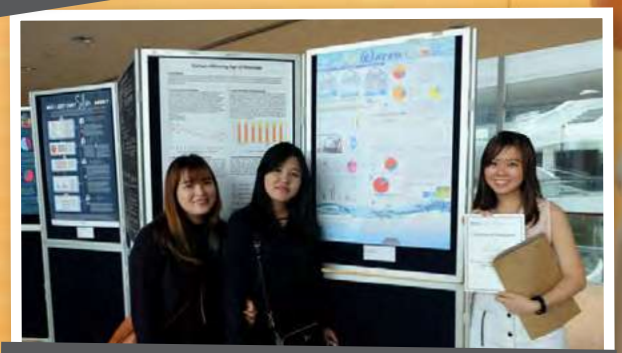


Dunman High School students tried out the ARMolVis app using their mobile devices

Singapore Statistics Poster Competition

CONTINUE >>

Head of Department Prof Chan Hock Peng with the winning team from River Valley High School who scored first place in the Secondary School category



The team from Republic Polytechnic with their project poster

Catholic Junior College won second place in the Junior College category

Prof Chan Hock Peng with the winning team from NUS High School of Mathematics and Science who scored first place in the Junior College category

The competition, held from March to July, saw greater participation, with 84 secondary school entries and 38 junior college entries.

The students explored creative data displays and used statistics to present different points of view and answer questions about data. They also discussed statistical applications in various areas, such as social media, health and public transportation.

Through these activities, students learnt how many real-life problems can be modelled using statistics, the application of statistics to non-quantifiable and intangible topics and how data analysis can enable informed data-based business decisions. Participants went away with a better understanding of the work of statistical researchers and analysts.

River Valley High School (RVHS), emerged first in the secondary school category, while NUS High School of Mathematics and Science (NUSHS) retained its championship in the junior college category. The winners received prizes and certificates at an awards ceremony on 8 September.

SI Chenglei, Year 4, from the RVHS winning team, said, "We were very excited to receive the first prize. We chose to study the queue problem as it is relevant to our daily lives and also interesting to study mathematically."

Vernicia NEO, Year 6, NUSHS, said, "I gained a better understanding of the challenges in obtaining accurate and unbiased survey results. It is important to understand that not all survey findings are accurate as the researcher can manipulate the sample size or methodology."

Meridien Junior College Visit

On 5 October, the Faculty hosted a visit for some 40 students and teachers from Meridian Junior College (MJC). The visit is part of our ongoing outreach efforts to junior college (JC) students to generate interest and awareness of our Science curriculum.

In his talk on the Faculty's undergraduate programmes, Prof YAP Von Bing, Assistant Dean, Outreach and Admissions, asked students to start contemplating their life goals beyond earning a university degree. He explained that NUS' Science equips students not only with domain knowledge specific to their major, but also soft skills like communications which are important in the workplace.

Head of Physics Department Prof SOW Chorng Haur captivated the audience with science demonstrations to illustrate simple physics concepts in daily life.

Year 1 MJC student, XIE Ran said, "The physics experiments were interesting, engaging and easy to understand. The simple experiments explained many daily facts, like why there's no mobile phone signal in elevators. Prof Sow made the experience unforgettable. I was also reminded to focus on our goals even as we are fervently racing ahead."

Prof Sow Chorng Haur delivered a Masterclass lecture titled "The Professor's Travelling Suitcase of Science Wonders"

Prof Yap Von Bing gave an overview of the Faculty's undergraduate programmes and plethora of academic enhancement and enrichment programmes

What's Up?

Check out the events from December 2017 to May 2018!

• 2017 •

2 Dec	Single Mingle
7 - 9 Dec	13th China-Singapore Joint Symposium on Research Frontiers in Physics
10 - 13 Dec	7th Asia Oceania Mass Spectrometry Conference 2017
11 Dec	Kraft-Heinz Meal Packaging Event
15 - 27 Dec	Project La Lumiere
18 Dec	Launch of temporary gallery exhibition "Christmas Island RED" at the Lee Kong Chian Natural History Museum
19 - 21 Dec	22nd Biological Sciences Graduate Congress

• 2018 •

5 Jan	Visit by Greenridge Secondary School
8 Jan	Visit by Innova Junior College
26 Jan	Faculty Awards Ceremony
31 Jan	Mathematics Learning Journey for Junior College Students
2 Feb	Visit by Jurong Junior College
5 Feb	Department of Biological Sciences Outreach Talk at Victoria Junior College
9 Feb	Students Achievement Awards
Mid Feb	Introduction to M.Sc. in Pharmaceutical Sciences and Technology (MPST) programme
22 - 23 Feb	The Science, Art and Regulation of Consumer Care Products Workshop
26 - 27 Feb	PHARMACOGENOMICS: Clinical Implementation Strategies and Pharmacists' Roles
28 Feb	Mathematics Learning Journey for Junior College Students
10 Mar	NUS Open Day 2018
14 Mar	Data Science Day
26 Mar	Mathematics Learning Journey for Junior College Students
Mid Apr	Department Engagement Events
16 Apr	Mathematics Learning Journey for Junior College Students
17 - 20 Apr	EMBO workshop on Nuclear Mechanogenomics
12 May	Faculty Open House 2018
23 May	Creative and Heuristic Applications of Science (CHAOS) Finals
26 May	13th Singapore National Crystal Growing Challenge

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