DISCOVER SCIENCE @NTU

Asian School of the Environment
School of Biological Sciences
School of Physical and Mathematical Sciences

www.cos.ntu.edu.sg

Biological Sciences
Biomedical Sciences and Chinese Medicine
Chemistry and Biological Chemistry
Environmental Earth Systems Science
Mathematical Sciences
Mathematics and Economics
Physics and Applied Physics
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Welcome to the College of Science (CoS) at Nanyang Technological University (NTU Singapore)!

As a young institution of barely 16 years old, the CoS, comprising the School of Biological Sciences (SBS), the School of Physical & Mathematical Sciences (SPMS), and the Asian School of the Environment (ASE), shares many traits of youthfulness, which we harness to equip our students for the increasingly VUCA (= Volatile, Uncertain, Complex, and Ambiguous) world.

We believe in drawing out the Ability in both our students and professors. We therefore invest heavily in recruiting outstanding scientists who are passionate in educating the young. We relentlessly innovate and create opportunities for our students so that they may have a stimulating learning experience, be challenged, and grow. As a consequence, our graduates have been much sought after by top employers and graduate schools, like Google and MIT, our professors have won international accolades, and budding entrepreneurs have emerged among both our professors and alumni. NTU’s steady rise in international visibility and stature in recent years is a happy natural by-product of this focus on talent development.

We also believe in Unconventionality. The ability to think ‘out of the box’ is key to innovation and creativity, thus allowing one to stay ahead in the competitive world. We have been bold to innovate in our approach to education. For example, before ‘Big Data’ became a fashionable term in the past couple of years, the CoS already introduced a Business Analytic track in the Mathematical Sciences program to churn out data scientists since 2012. And well before Prime Minister Lee Hsien Loong of Singapore emphasized, in November 2014, the importance of exposing students to programming, the CoS already made programming a compulsory part of the curriculum for some of its majors in 2005!

Finally, we believe in nurturing Versatility. Talent is not narrowly defined in academic terms. Instead, we celebrate diversity in talent, and encourage students to become versatile. We rejoice when our students and alumni excel in international sports competitions or carry out humanitarian projects. We have even instituted the OG Department Stores – Mr Tay Tee Peng Distinguished Undergraduate Student Awards to honour students with a combination of academic excellence, leadership qualities, and passion to serve the community.

We believe in encouraging Curiosity. Initiatives such as the ‘Making and Tinkering’ course and intensive hands-on biology courses, as well as internship opportunities, reach out to the curious minds, to explore, experiment, and experience, and the curious minds become enriched in the process.
We believe that the ACUV (= Ability, Curiosity, Unconventionality, and Versatility) qualities will enable our students to thrive in the VUCA world, so we are guided by these principles in shaping the environment in the College to prepare young minds for the future.

I am immensely proud of the students, alumni, professors, and staff in the College of Science. Our youthful mindset and shared vision have made the CoS a great place to be – a fast-growing forward-looking institution. I invite you to become part of this great community, and to make it even greater!

“We have been bold to innovate in our approach to education.”

Professor Ling San
Dean, College of Science
ASSOCIATE DEAN’S MESSAGE

Welcome, all students, to the College of Science at NTU! If you have a passion for the natural world and for analytical thinking, pursuing a degree programme at the College of Science will inspire your quest for inquiry and creativity. Our Science education programmes will develop critical thinking and problem solving ability that will equip you for careers in a wide range of areas of society, locally or overseas. There is no better foundation for further studies in science or other disciplines than a degree in science.

As a student in the College of Science, at the Asian School of the Environment, the School of Biological Sciences, or the School of Physical and Mathematical Sciences, you will be part of a close-knit community of dedicated individuals who all share a common passion for science and education. Professors, research staff and graduate students provide students with ample research attachment opportunities and internship programmes outside the normal curriculum. Our large network of contacts with partners in industry, at research institutes and government agencies is available for students to tap into for external attachment opportunities.

Student life at the College of Science will enrich your personal character and develop friendship for life. As an NTU student, you are encouraged to develop your communication and leadership skills through participation in Club and Hall activities as well as a range of activities in sports at the beautiful NTU Garden Campus. We encourage all students to participate in overseas exchange programmes with several of the best universities in the world. As a student in the College of Science, you will have the opportunity to be a globally engaged student experiencing overseas academic cultures.

Professor Lars Nordenskiöld
Associate Dean (Academic), College of Science

“Student life at the College of Science will enrich your personal character and develop friendship for life”.

4 College of Science
WHAT’S SO SPECIAL ABOUT STUDYING SCIENCE@NTU?

OUTSTANDING FACULTY MEMBERS
Students are taught by a team of top-notch, internationally qualified faculty from over 29 nations; bringing unique perspectives, teaching methods and extensive contact networks from all corners of the globe. The College of Science has renowned Nanyang Professors and National Research Foundation Fellows among its ranks.

WORLD CLASS CURRICULUM
The curricula and standards for the various disciplines in the College of Science are modelled after those of the best universities in the world such as Caltech, Yale, UCLA, Cornell.

DIRECT HONOURS PROGRAMMES
The College of Science offers direct Honours programmes in Biological Sciences, Biomedical Sciences, Chemistry and Biological Chemistry, Environmental Earth Systems Science, Mathematical Sciences, Mathematics and Economics, and Physics and Applied Physics. This system gives all students, regardless of academic standing, exposure to advanced coursework and project work.

CN YANG SCHOLARS PROGRAMME
Outstanding undergraduate students may be selected to join the prestigious CN Yang Scholars Programme. This programme empowers students not only with a core degree in science or mathematics, additionally there are many enrichment opportunities woven into the programme.

SCHOLARSHIP AWARDS
NTU offers a variety of scholarships to top students in recognition of their academic excellence and leadership qualities.

STUDY AND WORK OVERSEAS
Students have the opportunity to gain cross cultural experience in reputable overseas universities. The NTU’s overseas programmes allow students to study and work abroad.

EXCELLENT CAREER PROSPECTS
Science and Mathematics graduates have a wide range of careers to choose from in a variety of industrial sectors such as the Life Sciences, Healthcare, Finance and Engineering sectors. Career prospects include, but are certainly not limited to: research, research support, business, management, administration, banking, IT and education.
The Asian School of the Environment (ASE) at NTU is an interdisciplinary School that aims to be a world leader in environmental research focused on Asian environmental challenges. The ASE integrates Earth and environmental life science, ecology, engineering and technology, human ecology, humanities, and the social sciences to address key issues of the environment and sustainability.

The Environmental Earth Systems Science major is the flagship programme of the ASE. Students who choose this course will gain a strong background in quantitative skills, modern computing techniques, and core environmental earth systems, maths and sciences. In addition, our programme emphasises leadership, group work, and innovative problem-solving skills, which are required to be successful in today’s workforce regardless of field.
CAREER PROSPECT

Our graduates are prepared with diverse skill-sets and knowledge to fill a wide array of both public and private sector positions or to pursue graduate programmes. Our graduates have job opportunities in Singapore, Southeast Asia and overseas, and are prepared to tackle the environmental challenges of the 21st Century.

Possible career options:
- Natural resource exploration, extraction and management (oil, gas and minerals)
- Water resource management / hydrologist
- Environmental consulting
- Geotechnical consulting
- Geologic survey or monitoring
- Environmental planning, policy, and management
- Urban planning
- Teaching or Research

Graduates will also have the opportunity to choose careers with employers not commonly associated with earth and environmental sciences, such as:
- Insurance companies, who rely on earth scientists to help assess long-term risk due to earthquake, volcanoes, climate change, and other natural disasters
- The financial sector, where firms seek quantitative knowledge about the science driving changes in the energy market
- Business, for companies that value technical know-how and creativity
SCHOOL OF

BIOLOGICAL SCIENCES

Since its inception in 2002, the School of Biological Sciences (SBS) key focus is to prepare students with the skills and knowledge required to excel in today’s global environment. The expectations of today’s graduates are very different, it is for this reason that SBS has developed a Biological Sciences degree with a range of second major programmes that allow students to diversify their skills with specialised knowledge in their area of interest. In addition, the School of Biological Sciences is unique in Singapore, in offering a double degree programme, which combines the SBS Bachelor of Biomedical Science with a Bachelor of Chinese Medicine. The rich mix of culture and nationalities among our professors and students, our varied opportunities for overseas study, and our partnerships with renowned institutes worldwide, provide for a global perspective on science and industry for our students.

BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES

This is an established and recognised direct honours Biological Sciences programme with an option to take a minor in any discipline. Students receive a strong grounding in the principles and practice of chemical biology, structural and computational biology, molecular and cell biology and genetics. After completing the foundational units, students will choose their specialisations and focus on topics, such as genomics, neurobiology, cancer biology, immunology, infectious diseases, stem cell biology and drug discovery. In the final semester, students have the choice of local or overseas final year projects or professional internships with industry partners and universities.
BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH MINOR IN BUSINESS

This programme is jointly offered by SBS and Nanyang Business School. Apart from an independent understanding of core business disciplines, skills and practices, the added exposure to Business will complement the Biological Sciences student’s core training by providing alternative paradigms for problem solving, an understanding of the applications of process within the framework of the business environment, and preparation for a management position within industry.

BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH SECOND MAJOR IN BIOMEDICAL MATERIALS

This is a new programme launched in 2016 and is the first of its kind in Singapore to offer this interdisciplinary programme. Students will be trained with a comprehensive background in the biological science and engineering of biomedical materials for regenerative medicine, tissue engineering, drug delivery, among others. This programme is taught in partnership with School of Materials Science and Engineering.
BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH SECOND MAJOR IN BIOMEDICAL STRUCTURAL BIOLOGY

First in Singapore to offer this unique programme in 2015, students will be cross-trained in biology and structural biology including medicinal chemistry and biotechnological aspects. This is a unique and highly competitive programme and offered only to students with strong academic standing with interest and abilities in analytical aspects of life sciences including biophysical aspects. This programme is taught in partnership with Lee Kong Chian School of Medicine and the Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences.

BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH SECOND MAJOR IN CHEMICAL BIOLOGY

This is a programme launched in 2014, combining the Biological Sciences (Honours) with Chemical Biology as a second major, in partnership with the Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences. Enrolled students will be cross-trained in Biological Sciences and Chemistry so as to have the relevant foundation to embark on research and development in the area of Chemical Biology.

BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH SECOND MAJOR IN FOOD SCIENCE AND TECHNOLOGY

This is a popular programme introduced in 2013. It is conducted in partnership with the Wageningen University (The Netherlands), NTU School of Chemical and Biomedical Engineering and School of Physical and Mathematical Sciences, the interdisciplinary nature of this new unique programme will benefit students who are interested in biology and further wish to gain understanding about food processes with an engineering and industrial point of view.
BACHELOR OF SCIENCE (HONOURS) IN BIOLOGICAL SCIENCES WITH SECOND MAJOR IN PSYCHOLOGY

This is a prestigious programme offered by the School of Biological Sciences in partnership with the School of Humanities and Social Sciences since 2013. In fast-paced Singapore with its population encountering increasing levels of stress, there is a growing emphasis on awareness of mental health and a demand for professionals with interdisciplinary training in Psychology. Students who have a curiosity about human emotions, behaviours and thoughts will greatly benefit from this curriculum, developing interests in fields of psychology such as Human Memory, Human Motivation, Cognitive Development, Trauma Psychology and even Forensic Psychology of Crime.

CAREER PROSPECT

It is now well-recognized worldwide that a broad-based education better prepares undergraduates for challenges and opportunities of the future. Students are offered direct honours degree programmes which enhance your option for academic progression as well as boosting employability. As a graduate of our programmes, you will have numerous career options ahead of you. Career as a medical doctor, veterinarian or research scientist, among others, are popular routes of our graduates.

In the public sector, life science graduates are well sought after in hospitals, research institutes, government agencies and forensic departments. Commercial sectors that actively seek out graduates from the life sciences include the pharmaceutical, biotechnology, food, water and agriculture industries for roles such as process engineers, biotechnologist, QA specialist and clinical researcher. There is also demand for life science graduates to contribute to the public understanding of science as journalist, scientific writers and information/liaison.
officers. Financial and legal sectors also require analysts with life science knowledge for risk assessments, patents for molecular biology and biotechnology used for drug and medical applications. A postgraduate qualification with NIE for entry into the teaching profession is also an option.

For those with an entrepreneurial spirit, the broad range of electives to choose from and partnerships with NTUitive will endow our graduates with the necessary skills and tools to start their own business. The opportunities for undergraduates in general, include careers outside of biology where transferable skills taught in the degree programme will be of benefit in management, financial sector and human resources.

**HEALTHCARE**
Tan Tock Seng Hospital, KK Women’s & Children’s Hospital, Jurong Health, Singapore General Hospital, Eu Yang Sang, Kin Teck Tong Clinic

*E.g. Clinical Researcher, Management Associate, Hospital Executive, Healthcare Operations Executive, Pharmaceutical Sales, Physician, Acupuncturist, etc.*

**BIOMEDICAL & PHARMACEUTICAL**
Lonza Biologics, Johnson & Johnson, Novartis Bio Pharma Operations, GlaxoSmithKline, Amgen

*E.g. Process Engineer, Manufacturing Biotechnologist, QA Specialist, Clinical Researcher, R&D Officer, Validation Engineer, etc.*

**PUBLIC SECTOR**
Ministry of Health, A*STAR, Genome Institute of Singapore, Institute of Molecular & Cell Biology, Ministry of Education, Singapore Police Force, National Environment Agency, KK Women’s & Children’s Hospital, SingHealth

*E.g. Research Officer, Health Policy Analyst, Forensic Specialist, Project Officer, Laboratory Manager, Gynaecologist, etc.*

**BANKING, FINANCE & LEGAL**
Citibank, Bank of America Merrill Lynch, Deloitte & Touche, DBS Bank, Drew & Napier LLC, Moody’s Singapore

*E.g. Risk Consultant, Relationship Manager, Management Associate, Patent Officer, Vice-President, Fixed Income Trader, Tax Consultant, etc.*
ENTREPRENEUR
In Vitro, Aitreat, Archisen, BlazeRidge, Bio3D Technologies, TCMTREND
E.g. Owner of Bio 3D Printing Company, Owner & Physician of TCM Clinic

POSTGRADUATE STUDIES
Cambridge University, Duke-NUS Medical School, Nanyang Technological University, Karolinska Institutet, University of Edinburgh
E.g. Medical Student, M.Sc & Ph.D Student.

OTHERS
E.g. Scientific Writer, Communication Account Executive, Scientific Journalist, Marketing Associate, Events, Service Executive, etc.

DOUBLE DEGREE:
BACHELOR OF SCIENCE (HONOURS) IN BIOMEDICAL SCIENCES
BACHELOR OF CHINESE MEDICINE
(中医学学士学位)
This unique five-year double degree programme is an amalgamation of the western approach to Biomedical Sciences with Traditional Chinese Medicine. The Bachelor of Science (Honours) in Biomedical Sciences is conferred by NTU and the Bachelor of Medicine (Chinese Medicine) is conferred by the Beijing University of Chinese Medicine (BUCM). The first three years of the double degree are taught at NTU, while the final two years are taught at the BUCM in the People’s Republic of China. This is a bilingual course with English and Mandarin as the languages of instruction.

CAREER PROSPECT
Graduates with Double Degree in Biomedical Sciences & Chinese Medicine are well positioned to consider careers in both Life Sciences/Biomedical Sciences and the Chinese Medicine industry. The majority are employed as Chinese Medicine Physicians (subject to passing the Singapore Chinese Medicine Practitioners’ Board Exam) as well as Management & Administration positions in Healthcare organizations and clinics, just to name a few. Some of our graduates are currently pursuing higher degree (Masters) in Chinese Medicine or research as PhD students at local universities.
SPMS recognises that the most exciting sciences and challenging problems of the 21st century will shift from the traditional disciplines to the interfaces of disciplines. The School offers eight rigorous 3- to 4-year Bachelor of Science (Honours) programmes, and students are taught and mentored by faculty doing cutting-edge research. The state-of-the-art facilities of the School provide an excellent environment for teaching, research and learning.

**BACHELOR OF SCIENCE (HONOURS) IN CHEMISTRY AND BIOLOGICAL CHEMISTRY**

Students are offered a direct honours programme that satisfies the American Chemical Society curricular guidelines for a rigorous professional education in chemistry. In addition to the core contents, students may also opt for concentrations in areas of Food Science and Technology, and Medicinal Chemistry. Plenty of enrichment courses are available, such as Forensic Science, Impact of Chemistry on Society and many more.
BACHELOR OF SCIENCE (HONOURS) IN CHEMISTRY AND BIOLOGICAL CHEMISTRY WITH SECOND MAJOR IN FOOD SCIENCE AND TECHNOLOGY

The Food Science and Technology Second Major programme is a collaboration between NTU and the prestigious Wageningen University from the Netherlands, whose Food Technology programme is considered one of the best and most innovative in Europe. It builds upon three of NTU’s existing BSc/BEng programmes, in which students will be awarded a certificate for the Second Major upon graduation.

CAREER PROSPECT

Chemistry graduates can find ready employment in a wide range of chemical-related industries in Singapore and overseas. These include the biomedical and pharmaceutical industries, the petrochemical industries, polymer/paint/semiconductor industries and the food and beverage industry. A*STAR research institutes and other public sector agencies such as Health Sciences Authority and DSO National Labs are also eager employers. Many chemistry graduates have chosen a career in education, taking up the remarkable role of an educator who shapes the minds of the next generation.
BACHELOR OF SCIENCE (HONOURS) IN MATHEMATICAL SCIENCES

This programme offers a good mix of fundamental, as well as the applied, computational, and the industrial aspects of Mathematics and Statistics. Students undergo 18 months of foundational courses; thereafter they will choose their specialisations either in the Statistics stream, the Pure Mathematics stream, the Applied Mathematics stream or the Business Analytics stream. The emphasis of this degree lies in breadth, flexibility and relevance.

BACHELOR OF SCIENCE (HONOURS) IN MATHEMATICAL SCIENCES WITH MINOR IN FINANCE

The use of mathematical methods has now become widespread in all areas of finance and economics, and the Minor in Finance in addition to a Major in Mathematical Sciences is designed to respond to this demand and to give an edge to the mathematics student. This Minor is offered by the Nanyang Business School, exclusively to selected Mathematical Sciences students who will be taking additional courses in Banking and Finance.

BACHELOR OF SCIENCE (HONOURS) IN MATHEMATICS AND ECONOMICS

This programme shapes our students into individuals with the skills most sought-after by the financial services industry in reading both Mathematics and Economics. Other than the common foundational courses, the emphasis in the later study of Mathematics will be the numerical, computational and statistical methods. For Economics, it will be on the quantitative techniques and the fundamental economic concepts.

CAREER PROSPECT

Mathematics graduates often play a leading role in fields as diverse as finance, I.T, biotechnology, and many others. Attesting to the versatilities of a mathematical training, it is very common for mathematicians to obtain jobs with titles like “Risk Analyst”, “Actuary”, “Clinical Trials Manager”, “Epidemiologist” and countless others. Mathematics gives you a superb foundation for later specialisation, and a set of analytical skills that would be valued by any employer.
BACHELOR OF SCIENCE (HONOURS)
IN PHYSICS

The Physics degree is designed to equip students with solid analytical and computational skills, while recognizing the needs to prepare them with strong experimental training. Emphasis is placed on the core content of the course, which focuses on conceptual and fundamental knowledge as well as lab-based trainings and experiments. Students may also opt to concentrate in Nanotechnology.

BACHELOR OF SCIENCE (HONOURS)
IN APPLIED PHYSICS

After undergoing the foundational courses, students majoring in Applied Physics will undergo courses that emphasize the physical principles that are critical in driving frontier technology and applied research. The Applied Physics majors also enjoy the opportunity to opt for a concentration in areas of Nanotechnology, Optical Technology, Semiconductor Technology and Biophysics.

BACHELOR OF SCIENCE (HONOURS) IN PHYSICS WITH SECOND MAJOR IN MATHEMATICAL SCIENCES

Alongside a first major in Physics, outstanding students may apply for admission to the degree programme which allows them to pursue a second major in Mathematical Sciences. This second major allows students to acquire a strong mathematical foundation to prep them for graduate studies in theoretical and computational physics.

CAREER PROSPECT

Physics graduates are rewarded with a wide choice of careers. The key objectives of our educational programme are creativity, active collaboration and effective communication. Supplemented by exposure to research and work attachments, this ensures employability of all our graduates. Critical analysis, quantitative reasoning and problem-solving skills acquired in the programme are coveted by a variety of employers like research organisations, semiconductor industries, optics and displays, equipment manufacturers and many more.
HOW WILL A GOOD STUDENT BE CHALLENGED?

GOH HUI TING
Year 2, Biological Sciences
CN Yang Scholar,
Hwa Chong Junior College alumnus, Singapore

CN YANG SCHOLARS PROGRAMME
The CN Yang Scholars Programme (CNYSP), named after Professor CN Yang (Nobel Laureate in Physics 1957), is a programme specially designed for exceptional students with a deep passion in science, engineering and research. The programme provides a strong and broad foundation that encompasses all branches of science and also provides them with ample research opportunities in NTU and overseas. CN Yang Scholars are fully funded to undertake 5 to 8 months Overseas Final Year Project at reputable universities. At the end of the undergraduate study, CNYSP graduates are given an option to pursue postgraduate study (PhD) with a scholarship in NTU or Joint PhD overseas.

“Under the CNYSP, I am blessed with numerous opportunities to explore research. CNYSP’s interdisciplinary curriculum has allowed me to appreciate the other Science and Engineering disciplines, therefore paving the pathway to a future of collaboration between researchers of different backgrounds.”
Bai Zhongzheng
Year 4, Mathematics and Economics
Hwa Chong Institution alumnus, Singapore

Undergraduate Research Experience on Campus (URECA)

URECA (Undergraduate Research Experience on CAm pus) is an elite research programme for second year and above undergraduate students who have achieved excellent academic standing. On this exclusive platform, undergraduate students are given an opportunity to work on a research project of their interest, and pursue independent research under the guidance and supervision of a professor over a period of eleven months (August to June). The programme allows students to immerse in a vibrant research culture and gain invaluable first-hand experience while earning monetary allowances or academic credits as well as other incentives. They will be awarded the coveted title of NTU President Research Scholar (NTU PRS) upon completion of the programme. By the end of URECA, NTU PRSs will gain a good appreciation of the open-endedness of research, formulation of research problems and possibly a nurture desire to pursue a higher degree through research and eventually choosing research as a career.

“The prestigious URECA programme is a great way to be immersed in the strong research culture at NTU! Not only are there tonnes of projects to choose from, you get to take ownership of a research project and even publish it!”
ARE THERE ANY OPPORTUNITIES FOR GLOBAL EXPOSURE?

Undergraduate students in the College of Science are offered the opportunity to learn, work and do research at some of the best universities. Students can tap into a network of over 350 partner institutions around the world. These help them to develop global perspectives besides broadening their learning experience.

The Global Education and Mobility (GEM) programmes offer various outbound mobility opportunities that include the GEM Discoverer, GEM Explorer and the Overseas Attachment Programme. Students may choose from a diverse range of study abroad options, depending on one’s budget and preferences.

“...The planning that leads up to going for exchange may be daunting, but the returns, experiencing a different culture and learning precious life lessons, are priceless.”

CHRISTINA TAN EN HUI
Year 4, Biological Sciences (Integrated Programme)
Nanyang Scholar, Anglo-Chinese Junior College alumnus, Singapore
University of Manchester, the United Kingdom
GEM Discoverer offers four high quality learning programmes that place students globally for overseas internships (Work & Study), summer studies, business/cultural executive programmes (Prelude) and language training (Language Immersion). Except the Work & Study programme, all programmes are conducted during university vacations (May – July and December), lasting from 2 to 6 weeks. Students will earn academic units upon successful completion.

GEM Explorer enables undergraduate students to take courses and do research in an overseas partner institution for one full-semester while exploring a new country and culture. They can earn academic units while broadening their global network and perspective. This programme allows students to go for exchange to over 350 universities in 45 countries all over the world. It gives them the global exposure needed to be the leaders of tomorrow.

The Overseas Attachment Programme, managed by NTU Career & Attachment Office, is a unique learning experience for students to experience life outside Singapore. Based on a strong partnership between NTU and the industry, the programme allows students to widen their perspective of the working world, enhance their employability and career mobility worldwide upon graduation.

POH QUAN LI
Year 4, Chemistry and Biological Chemistry
Singapore Polytechnic Diploma alumnus
University of Edinburgh, the United Kingdom

“It wasn’t just an academic exchange, it was an exploration of culture and the amazing wonders the world has to offer beyond our borders.”
HOW WILL I LEARN?

LECTURES AND TUTORIALS
Initial information is delivered in lectures to large groups of students within lecture theatres. Thereafter, students will break into smaller groups for tutorials to discuss materials presented in lectures. During tutorials which are mediated by faculty or senior postgraduate students, students have an opportunity to expand on concepts and theories introduced in the lecture, discuss the materials presented and apply newfound knowledge to current issues. Many courses are incorporated with interactive, engaging learning contents and activities under the Technology Enhanced Learning (TEL) programme. Leveraging on the latest developments in information technology and on novel pedagogical design principles, TEL utilizes learning activities that provide opportunities for learners to attain the knowledge and skills of the 21st century.

LABORATORY PRACTICALS
To promote a broad-based education, undergraduate students regularly participate in laboratory work which exposes students to cutting edge equipment and techniques. Students are also given opportunities to carry out research under the supervision of staff members during the semester break as well as through a semester-long intensive research project.

GROUP DISCUSSIONS
In addition to formal lectures and tutorials, undergraduate students are encouraged to meet with faculty for further discussion and clarification of lecture material. The College of Science prides itself on the dedication and open-door policy of all faculty who are ready to share information and foster learning. It is certainly not unusual to see students having regular meetings with faculty over lunch or coffee.

INDUSTRIAL INTERNSHIP
The internship provides an opportunity for students to get a taste of the working environment. Students will have the flexibility to choose to work with any of our industry partners. This is a good training ground for students to apply their knowledge in a real life situation. Working life provides the opportunity of enhancing one’s communication and interpersonal skills. Internship also helps students to make decisions about their career path.

RESEARCH PROJECTS
Students usually work independently on a full time research project during their final year of study. Such projects give all students a chance to put theoretical knowledge into practice and gain valuable research experience prior to graduation. Students will get to learn various experimental and problem solving techniques through research projects.
In today's global and dynamic economy, competition for top jobs remain extremely competitive. To get noticed and land that desired job, you will need the right career skills, guidance and networks.

With excellent connections to over 3,000 global and local industry partners, including multinational companies, top banks, small and medium enterprises and government agencies, NTU's Career & Attachment Office (CAO) is well placed to give you an important head start on your dream career through purposeful internships and career-preparatory programmes. Our role is to equip graduates with essential employability skills.

To help you in your self-discovery and guide you with your career plan, we have professional Career Coaches dedicated to help CoS students. Apart from your Career Coaches, you will also be supported by CAO Career Consultants, Trainers and officers. A suite of career events and programmes are also available to help you gain self-mastery and these include NTU NextGen Careers (a one-stop career platform), industry and recruitment talks, career fairs, networking events, alumni networking events and career workshops. In addition, CAO also connects you with employers and facilitates quality internship opportunities to help you gain relevant work experience.

For all NTU Students, the Margaret Lien Centre for Professional Success (MLCPS) runs two mandatory credit-bearing online career preparatory courses to equip you with future-ready skills for the workplace and give you a competitive edge.

At CAO, our programmes inculcate the NTU values towards personal and professional work ethics. We develop and support you so that you can succeed in your career and community as a whole. Each student will be a global citizen with personal mastery in their career skills and a relevant and confident contributor to society.

We wish you a positive start in your career journey. Find out more about CAO’s career services and internship opportunities at www.ntu.edu.sg/cao.
## ADMISSION REQUIREMENTS

### FOR BACHELOR OF SCIENCE PROGRAMMES

#### ASIAN SCHOOL OF THE ENVIRONMENT

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<th>PROGRAMME</th>
<th>MINIMUM SUBJECT REQUIREMENTS</th>
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<td>Environmental Earth Systems Science</td>
<td>At least H2 Level or equivalent pass in Mathematics and a H2 Level or equivalent pass in Physics, Chemistry, Biology, Economics or Computing</td>
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Information in the brochure is correct as of 25 November 2016.