



Faculty of Science

Undergraduate Programmes



Science

Empowers Your Dreams

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CUHK Science

Since 1963, the Faculty of Science at The Chinese University of Hong Kong (CUHK Science) has taken pride in providing the ideal environment for active scientists to learn and undertake research. The Faculty now offers a wide variety of undergraduate programmes and postgraduate programmes. A quarter of the students at the Faculty are working towards postgraduate degrees. We aim to provide a holistic science education whilst boosting learning with a liberal arts approach. We believe that this emphasises our students' development of independent and critical thinking, problem solving skills and creativity.

The Faculty now has six major teaching units offering a wide variety of undergraduate programmes with notable professors and world-class facilities, and is committed to research excellence.

6 Major Teaching Units



Chemistry



Earth and
Environmental Sciences



Life Sciences



Mathematics



Physics



Statistics



To educate and inspire the next generation of scientific innovators and leaders; and expand the frontier of human knowledge

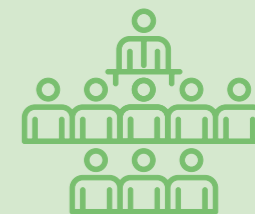
Established in

1963



>400

Teaching and
Research Staff



2500+

Undergraduate
Students



13

Research Postgraduate
Programmes



7

Taught Postgraduate
Programmes



1000+

Postgraduate
Students

More than half a century on, our Faculty is now a world-class, research-oriented Faculty with leading scientific innovations across a wide range of disciplines. Our impressive list of faculty members and distinguished alumni attest to the fine level of research, teaching, and learning at our Faculty. They committed themselves to a wide spectrum of research areas, from astronomy and meteorology to medical and scientific advancement, with the aims of expanding the frontier of human knowledge and contributing to the improvement of human life.

CUHK Science is not only engaged in a relentless strive for education and research excellence on campus. We are also pioneers in enhancing teaching and learning development projects, as well as promoting public science education. Looking forward, our Faculty is determined to continue as a leader in scientific education and various pursuits. Higher education and academic research require great effort and can only be achieved by inspired and passionate students and faculty members. Therefore, we strive to provide a fun, stimulating, yet inspiring environment for members to achieve individual goals.

Notable Professors

Our Faculty is very fortunate to have world-renowned professors whom contribute to the advancement of science at CUHK and engage in activities stimulating our students.

Research Excellence

The Faculty is proud to be the home of more than a hundred dedicated scientists conducting cutting-edge research in various areas of science. Every year, our Faculty is awarded a great number of competitive research grants from many local, mainland, and overseas commissions.

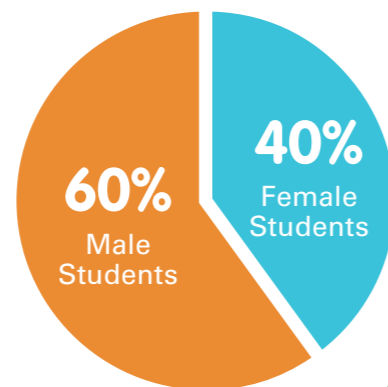
Our students have many opportunities to develop their research interest at the early stage of their studies. Science, Technology And Research Stream (STARS) offers students chances to learn from distinguished professors, participate in international conferences, and study overseas.

The Faculty is also involved in a number of centres and world-class facilities which are effective platforms for developing interdisciplinary research and promoting knowledge transfer.

- RGC-AoE Centre for Genomic Studies on Plant-Environment Interaction for Sustainable Agriculture and Food Security
- RGC-AoE Centre for Organelle Biogenesis and Function
- State Key Laboratory of Agrobiotechnology
- State Key Laboratory of Synthetic Chemistry
- UGC-AoE Centre for Plant and Agricultural Biotechnology

Diversity and Inclusion

CUHK Science's motto is **Science Empowers Your Dreams**. Our Faculty firmly believes in the potential in every one of our staff and students. We recognise that our members come from various backgrounds, and we are committed to building a welcoming community founded on the core values of Openness, Civility, and Inclusivity. With due respect for one another regardless of our differences and ensuring that admission and progress for staff and students are only determined by personal merit and performance, we aim to be where you get closer to reaching your dreams.



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Science education is the key to technological innovations. Not only does it fuel economic growth in modern society, but it also benefits humanity in our daily lives.

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^a The CUHK has established a total of five State Key Laboratories.

^b The University Grants Committee (UGC) has provided preferential funding to the local tertiary institutions to conduct research into selected Areas of Excellence (AoEs). Out of a total of 28 such projects, 11 are led by CUHK researchers.

^c In five past academic years (2017-18 to 2021-22), hundreds of undergraduate and postgraduate course-offerings have provided eLearning to students to enrich their learning and ensure continuity amidst the global pandemic.

^d For the 2016-19 and 2019-22 triennia, CUHK Science received more than HK\$4.6 million funding from the UGC's Teaching Development and Language Enhancement Grant to uplift quality of teaching and learning.

^e Science students received over HK\$15 million in scholarships in 2022-23.



- Commerce & Industry
- Education
- Further Studies
- Government
- Social and Public Organisations
- Others

~30,000
Graduates
Since 1963

Programme Overview

Major Programmes

B.Sc. in Biochemistry (BCHE)
B.Sc. in Biology (BIOL)
B.Sc. in Cell and Molecular Biology (CMBI)
B.Sc. in Chemistry (CHEM)
B.Sc. in Earth and Environmental Sciences (EESC)
B.Sc. in Food and Nutritional Sciences (FNSC)
B.Sc. in Mathematics (MATH)
B.Sc. in Molecular Biotechnology (MBTE)
B.Sc. in Physics (PHYS)
B.Sc. in Risk Management Science (RMSC)
B.Sc. in Statistics (STAT)

Double Major Programmes

B.Sc. in Biology and Chemistry (BICH / CHBI)

Joint-Faculty Programmes

B.Sc. in Biotechnology, Entrepreneurship and Healthcare Management (BEHM)
B.Sc. in Computational Data Science (CDAS)*
B.Sc. in Learning Design and Technology (LDTE)*
B.Sc. in Mathematics and Information Engineering (MIEG)*
B.Sc. in Quantitative Finance and Risk Management Science (QFRM)

CUHK x CUHK (Shenzhen) Programmes

B.Sc. in Interdisciplinary Data Analytics and Mathematics*
B.Sc. in Interdisciplinary Data Analytics and Statistics*

2-Year Programme for Sub-degree Holders

B.Sc. in Natural Sciences (NSCI)^

* Please refer to the Faculty Website for details

^ NSCI: A 2-year programme for articulation of local Associate Degree / Higher Diploma Holders

B.Sc. in Biochemistry



Biochemistry is a branch of science that investigates the chemical compounds and processes occurring in living organisms. The knowledge procured from the study in biochemistry has found extensive applications in medicine and biotechnology that drastically revolutionise our daily life. Our programme aims to (1) provide concepts and mechanisms of biochemical and life processes, with emphasis on biomedical sciences; (2) provide training on the latest biochemical technology; (3) cultivate the ability of critical thinking, a proactive and responsible attitude, and efficient communication skills for further study and career development.

Highlights

Our curriculum emphasises on current topics in biochemistry and molecular biology that have scientific, medical and social significance. Major study focuses include genetics and cell biology, protein and enzymes, bioenergetics and metabolism, methods in biochemistry and molecular biology, and biomedical and health sciences. Students can opt for a wide range of elective courses to attain professional knowledge in specialised disciplines such as clinical biochemistry, immunology, endocrinology, neuroscience, forensic sciences, sports science, and etc. Our curriculum

also emphasises on experiential learning as well as personal and career development. These are achieved through self-study modules, small group discussion, hands-on laboratory training, independent research and workshops.

Career Prospects

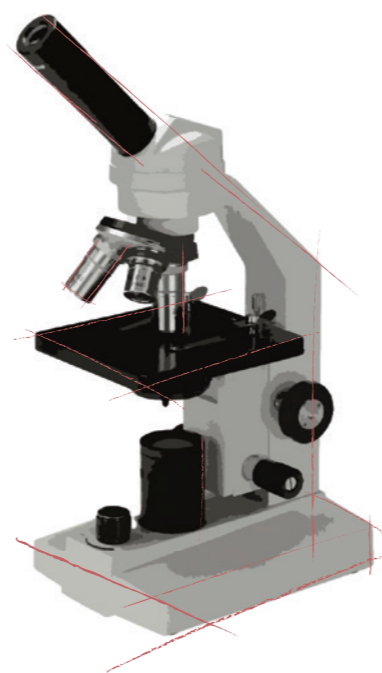
- Nearly half of our graduates pursue postgraduate studies in local or overseas universities
- About one-fifth of our graduates have joined medical and research laboratories
- Some other graduates have entered the education, commercial, industrial and government sectors

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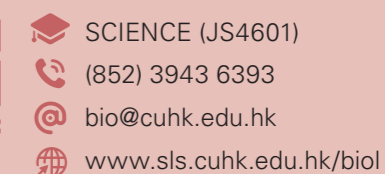
Alumna Sharing

Supported by an excellent and experienced teaching team, we are inspired to look for the hidden mysteries of life. The programme does not only provide us with the opportunity to learn in different research laboratories but also supports overseas exchange programmes and research opportunities.

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B.Sc. in Biology



Biology is a broad scientific discipline embracing many different fields of study, including the functioning of living organisms from virus to human. Fundamental to the study of life is unfolding biological organization at its many levels, from molecular architecture to ecosystem services. The Department of Biology, now the Biology Programme, was established in 1963 and was one of the earliest departments in the University. We offer a broad range of courses for students to choose from, including genetics, physiology, plant biology, zoology, marine biology, and ecology.

Mission

- Prepare students for modern careers in biological sciences and related fields
- Provide students with knowledge on the latest advancements in biology
- Promote excellence in teaching and research in all levels of biological sciences from molecular biology to ecology

Highlights

Our major undergraduate programme provides students with immense flexibility in course selection and broad

spectrum of curriculum that prepares the graduates for a wide variety of careers. After consolidating and developing basic knowledge in science and biology, our students can specialise in an area(s) of interest to fit their career plan by choosing one or more of the following study packages: Biology for Teaching Career, Organismic and Conservation Biology and Environmental Biology. The biology curriculum not only includes formal lectures and laboratory sessions, but also provides students with ample opportunities for developing communication and presentation proficiency, and research and project management skills through tutorials, fieldtrips, seminars and individually supervised research projects.

Career Prospects

With our comprehensive curriculum and training encompassing a variety of fields in biological science, our graduates develop careers in various fields including teaching, research, and related work in government, or private sectors such as conservation and environmental protection, agriculture and fisheries, food science, molecular science and health sciences.

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Alumnus Sharing

Biology provided a holistic curriculum framework to prepare students for research and future career, with teaching lab sessions consolidating the concepts acquired in the lectures. All professors and seniors were very helpful throughout the academic studies, career guidance and co-curricular activities.

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B.Sc. in

Cell and Molecular Biology



SCIENCE (JS4601)



(852) 3943 1361



cmb@cuhk.edu.hk



www.sls.cuhk.edu.hk/cmbi

Cell and molecular biology is an interdisciplinary field that represents the frontiers of biology and medicine. Advances in cellular imaging and multi-omics sequencing techniques have shifted the focus of modern biology towards understanding the functions of genes at the molecular, cellular and organismic levels. Launched in 2008, the Cell and Molecular Biology Programme (CMBI) offers an integrated curriculum that provides students with a solid knowledge base in areas such as stem cell biology, cancer biology and molecular genetics. CMBI students receive intensive laboratory training and develop core skills in analytical thinking and scientific communication, all with the goal of preparing them to undertake future research-related work in cell and molecular biology and beyond.

Highlights

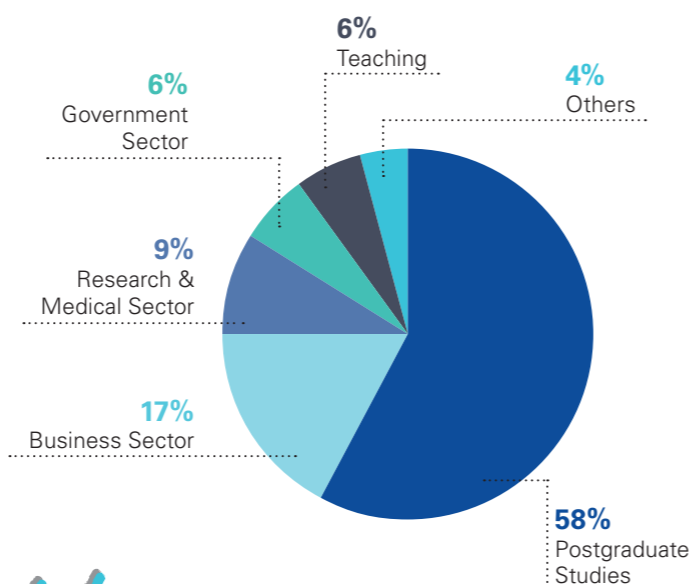
- An integrated programme of study covering cutting-edge research topics in cell and molecular biology on top of a solid knowledge base in life sciences
- Capstone courses conducted in small classes or through one-on-one teaching
- Intensive project-based laboratory research training
- Communication and logical reasoning skills essential for a successful career

Areas of Focus

- Research methods and Scientific communication
- Stem Cell Biology, Cell Biology of Cancer and Neuronal System
- Genomics, Transcriptomics & Metabolomics

- Contemporary topics in Cell Biology and Molecular Biology
- Fundamentals in Biochemistry and Genetics
- Independent research opportunities in Cell and Molecular Biology

Career Prospects



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Alumna Sharing

CMBI Programme has prepared me in the best way possible to realise my dream of becoming a scientist and opened the door for me to experience various kinds of research, both locally and internationally.

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B.Sc. in

Chemistry



SCIENCE (JS4601)



(852) 3943 6344



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chem.cuhk.edu.hk

Established in 1956, the Department of Chemistry remains as one of the largest and best-equipped departments in CUHK. Currently, our professors are engaging in all branches of frontier research, including synthetic chemistry, organometallic chemistry, chemical biology, polymer chemistry, theoretical chemistry, mass spectrometry, nanochemistry, electrochemistry, etc. With our effort, we are committed to nurturing future scientists.

Highlights

The Department of Chemistry provides solid training in general areas including analytical, inorganic, organic, physical and theoretical chemistry. In addition, students can choose from a wide range of elective courses according to their interest. Advanced and research-related courses are provided for students who need a solid background in chemistry for their further studies. Cross-disciplinary courses that focus on practical aspects such as forensic science, food testing, environmental analysis, pharmaceutical chemistry and coating chemistry are also available. In their final year of undergraduate study, students need to choose between problem-based learning and undergraduate thesis as a capstone project.

Experiential learning opportunities are always available to students to practice chemistry, such as:

- Local and overseas research programmes
- Internships at chemical R&D laboratories and start-ups, testing and certification companies, and local secondary schools
- Short-term visits to overseas universities

Students with satisfactory academic performance are eligible to apply for scholarships.

Career Prospects

Our graduates' careers are highly diversified. Many of them are taking prominent positions in different sectors, including:

- Secondary school principals
- Professors / lecturers in local and overseas tertiary institutions
- Chemists and forensic scientists in government laboratories
- Scientific officers in the Department of Health and Environmental Protection Department
- Senior executive officers in chemistry-related businesses and industries
- Researchers in scientific research and development sectors

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Alumna Sharing

Other learning activities such as overseas exchange in Singapore and summer field trip to Lanzhou University are organized by the Department each year to expand students' horizons and empower themselves with various potentials. As a chemistry student in CUHK, this memorable journey is definitely a lifelong variable experience!

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B.Sc. in

Earth and Environmental Sciences



SCIENCE (JS4601) OR

Earth and Environmental Sciences (JS4648)



(852) 3943 9323



eesc@cuhk.edu.hk



www.cuhk.edu.hk/sci/essc/eesc.html

Global climate change, environmental pollution, natural hazards, biodiversity loss, and the current energy and food crisis are all critical issues of public concern. Earth and Environmental Sciences Programme (EESC), integrating Earth System Science (ESSC) and Environmental Science (ENSC), will equip students with the latest knowledge and technical skills to observe, understand, analyse, and model the systems and processes that drive natural and anthropogenic global environmental changes.

Highlights

In this programme, particular emphasis is placed on multidisciplinary and combined theoretical observational approaches to understanding the problems stated above and formulating potential solutions. Students will acquire a strong comprehensive foundation in the dynamics of the Earth and its environment, with options to specialize in the following streams to suit their background, interests and career objectives such as Atmospheric Science, Geophysics, and Environmental Science and Technology. Students will be given opportunities to gain valuable quantitative and analytical skills, and build their capabilities via laboratory work, field studies, numerical modeling and programming experience, seminars, workshops and research projects. Further enhancing these are exchange opportunities at overseas universities as well as internships in the Hong Kong Observatory and other government agencies, geotechnical firms, and environmental organisations.

Career Prospects

Upon graduation, students are well prepared for jobs in the government, NGOs, and industries, including, but not limited to, geotechnical survey and engineering, meteorological and marine services, as well as climate, energy and environmental consulting. Students can also pursue further studies or embark on careers in the educational sector.

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ESSC Alumnus Sharing

The comprehensive training has provided me with a holistic understanding of climate change issues and equipped me with techniques for quantitative analysis, which I can employ to analyse interesting topics like atmospheric science and meteorology.

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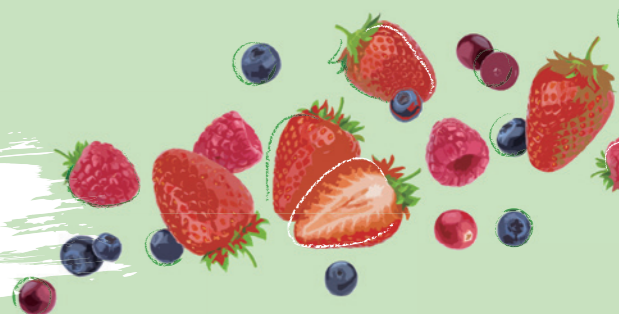
ENSC Alumna Sharing

I find my four-year university life at CUHK rewarding and eye-opening. The knowledge and experience that I have obtained are invaluable to my future development.

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B.Sc. in

Food and Nutritional Sciences



SCIENCE (JS4601)



(852) 3943 1361



fns@cuhk.edu.hk



www.sls.cuhk.edu.hk/fnsc

Food safety and prudent diet safeguarding the quality of our lives have become increasingly important. The rapid advancement of nutrition knowledge and the expansion of the health food industry further pose new challenges as well as research opportunities in food and nutritional sciences. To cope with the increasing demand for specialists in these areas, the University has started offering the Food and Nutritional Sciences Programme since 1994. Food science and nutritional science are two streams of study, but they are interrelated and inseparable. Students admitted to our programme will gain the basic and applied knowledge in both sciences. Equipping with a strong foundation, our students would be well-prepared for a number of careers in the food and nutrition sectors. Besides, our programme also prepares students to pursue further study on dietetics, health sciences and food research.

Highlights

Our programme provides:

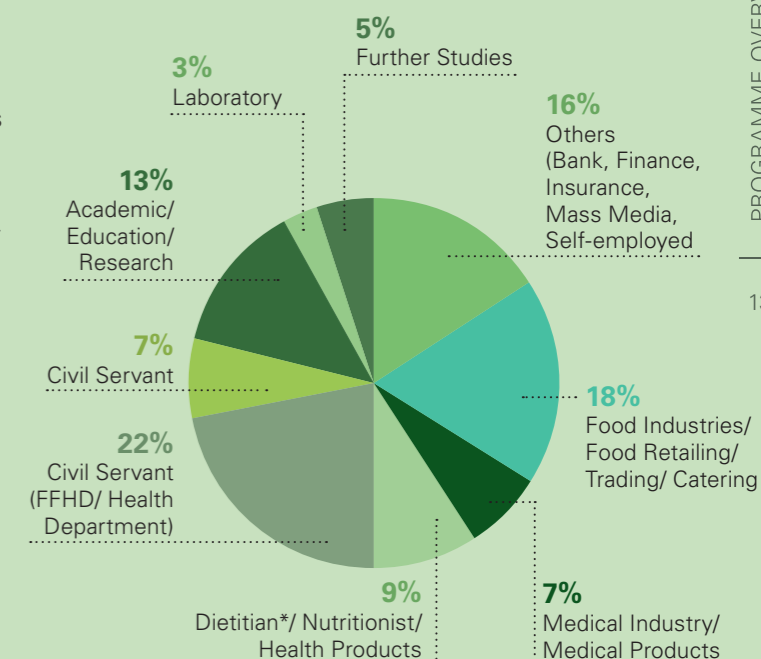
- Fundamental training in modern food and nutritional sciences, with an emphasis on the oriental perspective
- Opportunities to acquire research and/or professional expertise to support the local food industry and the profession of nutrition

Career Prospects

- Food-related Career (Industry): R&D, QA, Technologist, Marketing, Testing Lab and Auditing, Catering and Food Retail

- Food-related Career (Government): CFS Scientific Officer, DoH Research Officer, FEHD Health Inspector
- Nutrition-related Career: HA Hospital (Dietitian*, Programme Assistant) and NGO Nutrition Consultant, Health Care Nutritionist, Medical and Pharmaceutical Product Specialist
- Registered Associate Nutritionist (For details, please check with programme and the Association for Nutrition websites)

(* Further training required)



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Alumna Sharing

It includes the study of both food science and nutritional science, which are inseparable but actually two different disciplines. The broad topics discussed in the programme are definitely an inspiring and valuable knowledge base for our future career or postgraduate studies in this field.

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B.Sc. in Mathematics



SCIENCE (JS4601) OR
Enrichment Mathematics (JS4682)
(852) 3943 7988
dept@math.cuhk.edu.hk
www.math.cuhk.edu.hk

The Department of Mathematics continues its great tradition in nurturing young talents and enhancing their ability to serve society; it also strives to be an international research centre of mathematical sciences and applications. Our Department aims to provide high-quality mathematical trainings for students with various interests and orientations. Our programmes are particularly suitable for those who intend to acquire higher knowledge and ascend to an advanced position in their careers.

JS4682 Enrichment Mathematics

This stream is specially meant for students who wish to delve deeper into mathematical theories or are interested in mathematical research. Also, it is suitable for students intending to proceed to higher studies, and it helps students to consolidate mathematics foundation for further academic research.

JS4601 SCIENCE Broad-based Admission Scheme under the Faculty of Science

This scheme allows students to decide their majors at the time of entrance, or at the end of Year 1 or Year 2. Students may select Mathematics as their major, which is a broad and holistic programme. It includes several stream choices, such as Enrichment Stream, Computational and Applied Mathematics (CAM) Stream and Computational Big Data Analytics Stream. The CAM Stream and Computational Big Data Analytics Stream increase the breadth of knowledge and ability of application of students.

Highlights

- **Wide Variety Curriculum:** The Department offers a wide range of courses on both pure and applied mathematics. Students can choose to take elective courses according to their interest and stream orientation.
- **Highly Flexible Curriculum:** Students have a high degree of freedom in preparing for their favourite minor programmes. The most popular ones are computer-related programmes, business administration, and economics.
- **Experiential Learning Opportunity:** There are plenty of training opportunities for our students. Apart from lectures, our undergraduates can also enrich their learning experience in our China and Overseas Summer Internship and Exchange (COSINE) programme and Undergraduate Research Opportunity Programme (UROP).

Career Prospects

The career opportunities of a mathematics graduate are very diverse. Their skills can be used in different careers like banking, commerce, telecommunications, insurance, logistics planning, computer science, data analysis, finance, and engineering. Some may also pursue further studies in institutions abroad.

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Alumnus Sharing

Here, I met peers who seem to know infinitely more than I do; postgraduate students who understand mathematical jargon at ease; professors who are friendly and always eager to help. Every day, I learnt something from people in this intelligent community.

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B.Sc. in Molecular Biotechnology



SCIENCE (JS4601)
(852) 3943 6393
mbt@cuhk.edu.hk
www.sls.cuhk.edu.hk/mbte

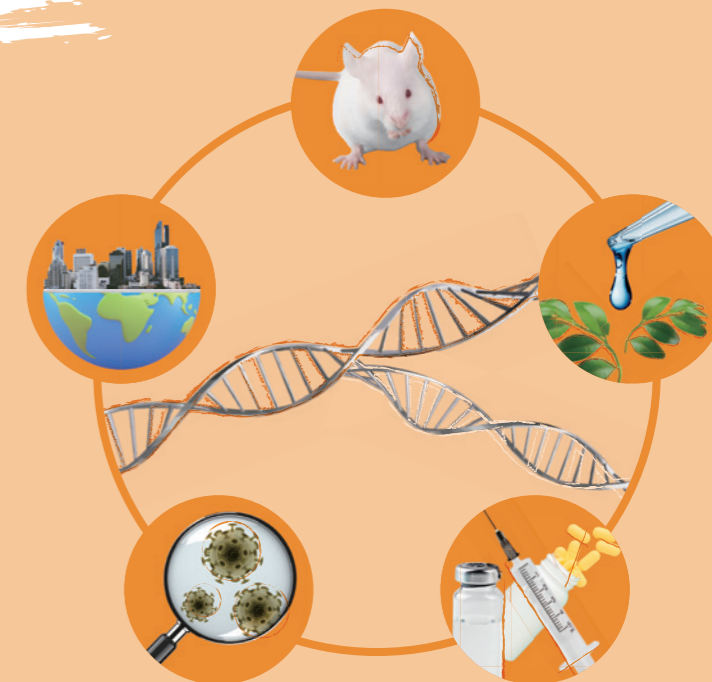
Molecular biotechnology is a revolutionary scientific discipline in the 21st century that involves the application of gene and protein technology. This state-of-the-art technology has exerted remarkable contributions to human society in agricultural, health, environmental, bioenergy, and other bio-industrial areas. The Molecular Biotechnology Programme (MBTE), launched in 1998, offers courses that encompass genetic engineering and applications of biotechnology in animal, plant, microbe, medicine and the environment. The programme also addresses the business and social implications of biotechnology, such as government policy, management, intellectual property, and ethical and public concerns. In addition, an array of elective courses that cover various aspects of cell and developmental biology, animal and plant physiology, immunology and clinical biochemistry, bioinformatics, genomics and proteomics are also available to students to facilitate their overall comprehension of life sciences.

Mission

- To provide theoretical and hands-on training to students on the fundamental knowledge, current development, business and social implications of molecular biotechnology
- To cultivate the ability of logical and critical thinking, and scientific communications

Highlights

- Fundamental knowledge in life sciences with emphasis on molecular biotechnology
- Hands-on skills through specially designed laboratory courses on methods in molecular biotechnology
- In-depth knowledge in selected areas of students' choice. Topics cover various aspects of challenging fields in biology and biochemistry



- Comprehensive understanding of the business and social implications of biotechnology, such as government policy, management, intellectual property, and ethical and public concerns

Career Prospects

Ample job opportunities in business sectors, pharmaceutical industries, commercial biotechnology companies, laboratories, agriculture, law firm, education and government sectors. Graduates can also pursue postgraduate studies in overseas or local universities.

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Alumnus Sharing

I am very glad to study MBTE in my bachelor's education. The knowledge and experience I gained from MBTE indeed led to some of the most amazing and life-changing opportunities. For those who are joining our family, there are unlimited possibilities in your future careers.

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B.Sc. in Physics



SCIENCE (JS4601) OR
Enrichment Stream in
Theoretical Physics (JS4690)
(852) 3943 6154
physics@cuhk.edu.hk
www.phy.cuhk.edu.hk

Building upon a tradition of excellence in teaching and research, the physics curriculum continues to enable students to have a good grasp of fundamentals of physics and a basket of analytic, experimental, numerical, research, communication and other generic skills, and to appreciate and understand the important applications of physics in modern society.

Highlights

Streams of Study

- Astrophysics and Particle Physics
- Computational and Data Physics
- Enrichment Stream in Theoretical Physics (JS4690)
 - This stream places special emphasis on building research capabilities. It is particularly designed for students who are interested in academic research career.
- Quantum Science and Technology

Experiential Learning Opportunities

- Plenty of research opportunities in various fields of science: Nano Materials and Energy Materials, Astronomy and Fundamental Physics, Quantum Science, Soft Matters and Complex Systems, Biological Physics and Quantitative Biology
- Research / Exchange Programmes: Summer Internship Research Programme, Overseas Programme for Undergraduate Research Students (OPUS), Summer Undergraduate Research Exchange (SURE) programme and Study Tour



- Teachers and students participate in international projects: Daya Bay Neutrino Experiment, ATLAS (CERN) and gravitational waves (LIGO)
- Internship Programmes: Summer Teacher Apprenticeship programme, Internship programmes in the Hong Kong Observatory and the Hong Kong Space Museum

Scholarships and Grants

- Admission Scholarships
- Undergraduate Research Experience Grant (UREG)
- Many other scholarships including: Physics Prize, CN Yang Scholarship and etc.

Career Prospects

Postgraduate studies in physics and related subjects at the doctoral or master's degree level in local and overseas universities (e.g. CUHK, Caltech, MIT, Princeton, Cambridge, Oxford)

Physics graduates have found employment in:

- Education
- Government, social and public services
- Industry, commerce and publishing industry

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Alumnus Sharing

The Department offers a wide range of learning activities, both locally and overseas. I have joined a study tour to visit the European Organization for Nuclear Research called CERN and other research facilities in Switzerland, which undoubtedly helped increase my understanding of how scientists carry out their work.

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B.Sc. in Risk Management Science



Risk Management Science
(JS4719)
(852) 3943 7931
rmsc@cuhk.edu.hk
www.sta.cuhk.edu.hk/rmssc

The Programme of Risk Management Science has been the leading pioneer in nurturing well-trained professionals in the risk management fields since its foundation in 2000. The Programme is suitable for students who have strong aspirations towards mathematical and scientific methodologies, and are interested to pursue a career in the financial industry and related areas.

Highlights

The curriculum of Risk Management Science is designed to equip students with the knowledge and skills to understand risk management from both theoretical and application perspectives in insurance, finance and other related areas. Risk management is an interdisciplinary subject, so in addition to statistics, our students will receive a solid training in other foundation subjects including finance, economics, accounting, mathematics and computer science.

Risk Analytics Stream

The Risk Analytics Stream places special emphasis on statistical science and computer science, including but not limited to subjects such as statistical inference, actuarial science and financial mathematics. Upon graduation, students are well-equipped to become professional risk managers with a strong background in data science and data analytics. Job referral services on internships and graduate jobs and opportunities for further studies will be provided to students of the stream.



Career Prospects

Investment Banks

- JP Morgan
- Morgan Stanley
- Goldman Sachs
- BNP Paribas

Retail Banks

- HSBC
- Bank of East Asia
- Standard Chartered

Accounting Firms

- Deloitte & Touche
- Ernst & Young
- KPMG

Insurance Firms

- HSBC Insurance (Asia)
- Aon Hong Kong
- AIA Company Ltd

Government Services

- Hong Kong Monetary Authority

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Alumna Sharing

The Programme provided me with analytical skills and the appropriate mindset to approach problems; I was not simply taught the solution but gained the ability to understand the scenario, break down the problem into pieces and then derive the solution.

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B.Sc. in Statistics



SCIENCE (JS4601)
(852) 3943 7931
statdept@cuhk.edu.hk
www.sta.cuhk.edu.hk

The Department of Statistics was founded in 1982. Our primary mission is to provide a quality education and undertake cutting-edge research. In today's Information Age, statistics has become an indispensable tool in business, social studies, engineering, medicine, clinical studies, genetics and marketing. To meet the increasing demand for well-rounded statistics graduates, we offer undergraduate programmes in Statistics, Risk Management Science, Computational Data Science (jointly administrated by the Department of Computer Science and Engineering) and Quantitative Finance and Risk Management Science (jointly administered by the Department of Finance). We also offer postgraduate programmes for students who intend to become experts in the field.

Highlights

The curriculum is designed to prepare students for careers in fields such as business, teaching and research. The curriculum covers the core of the subject and maintains a balance between theory and practice. Students are required to engage in workshops, case studies and projects under the supervision of teaching staff to broaden their statistical knowledge base, hone their practical skills and gain experience in handling real-life problems. Students can choose to specialise in one of the three streams: Data Science and Business Statistics Stream, Statistical Learning and Data Mining Stream, and Data Analytics Stream.



Career Prospects

Our graduates readily find employment in business, insurance, banking and finance, information technology, Government and professional services. Positions include statisticians, research analysts, data analysts, traders, financial analysts, risk analysts, consultants, software engineers, programmers and teachers. Many of them now hold key positions in the civil service and in various private sectors. Some of our graduates continue their studies and pursue a higher degree in overseas and local universities.

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Alumnus Sharing

Big Data has been growing in importance for businesses nowadays. In HKJC Football Betting Limited, I am dealing with a large amount of data every day to assess football matches and work out different odds and prices. The knowledge of statistical analysis acquired in CUHK has equipped me with the essential skills to analyse the data in a multitude of dimensions.

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B.Sc. in Biology and Chemistry (Double Major Programme)



SCIENCE (JS4601)
(852) 3943 6393 (Biology)
(852) 3943 6343 (Chemistry)
dm-bich@cuhk.edu.hk
www.sci.cuhk.edu.hk/dm_bich

Conscientiously devised by the Faculty of Science, Department of Chemistry and School of Life Sciences, the Bachelor of Science in Biology and Chemistry Double Major Programme shall equip students with enhanced broadness and diversity in both the fields of Chemistry and Biology through complementary and comprehensive trainings.

The continued transition to a knowledge-based economy has resulted in growing demand for a highly-educated workforce with interdisciplinary scientific expertise. Students who graduate from the programme will be equipped with an extensive array of scientific knowledge that are technical and analytical, earning them clear competitive advantages for both entering the workforce and to pursue further studies and research.

Highlights

Knowledge & Training

- To be equipped with a broad scientific knowledge ranging from quantum chemistry, atoms, molecules, cells, physiology, biodiversity, ecology to evolution
- To be trained with technical and analytical skills from both biology and chemistry disciplines

Cross-disciplinary Research

- To enjoy ample opportunities to take research method courses and final year projects supervised by professors from both units

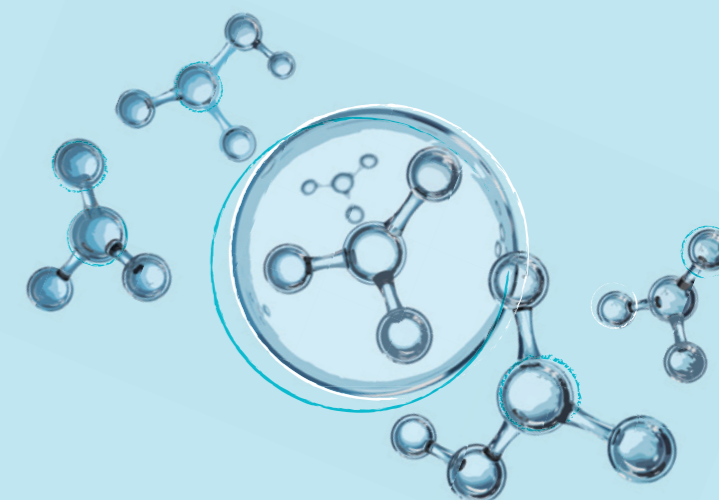
- To immerse in an environment that can receive the bona fide cross-disciplinary training in research

Professional Development

- To be equipped with cross-disciplinary scientific skills
- To develop enhanced adaptability and employability in multiple job sectors

Career Prospects

The Double Major Programme in Biology and Chemistry will equip students with cross-disciplinary scientific skills and enhance their adaptability and employability in multiple job sectors that provide accreditation, analytical and clinical testing services, pharmaceutical and health care product marketing, patent law firm or investor consultancy, education, environmental consultancy, and research and development (R&D).



B.Sc. in

Biotechnology, Entrepreneurship and Healthcare Management



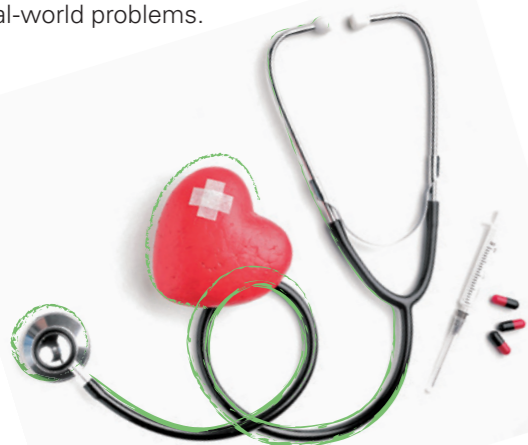
Biotechnology, Entrepreneurship, and Healthcare Management (JS4725)

(852) 3943 1264

behm@cuhk.edu.hk

www.sci.cuhk.edu.hk/behm

This interdisciplinary undergraduate programme is designed for talented students who would like to develop a career in biotechnology entrepreneurship, business analysis, and/or healthcare management, to capture the emerging opportunities in Hong Kong, the Greater Bay Area, and beyond. The programme brings together the Faculties of Science, Medicine, and Business Administration at CUHK to co-develop a brand-new, integrated curriculum with active learning as the core. In addition to a compilation of complementary courses in Biomedical Sciences, Business Administration, Molecular Biotechnology, and Public Health, capstone courses will be co-taught by the professors in different Faculties to upgrade students' problem-solving ability using cross-disciplinary knowledge. Opportunities of mentorships and internships from the relevant industrial, service, and venture capital sectors will be sought to allow the students to learn through connecting knowledge with real-world problems.



Mission

The programme aims to develop talents with a broad base of complementary knowledge, who shall demonstrate the following essential attributes:

- an entrepreneurial mindset with ground-breaking ideas to translate the advancement of biotechnology, biomedical sciences, and healthcare into commercial opportunities
- an ability to integrate a broad base of knowledge in biotechnology, biomedical & health sciences, data analytics, and business management to provide innovative and cross-disciplinary solutions
- an ability to communicate with collaborators of diverse backgrounds and participate in the management of healthcare operations and development.

Highlights

- Cross-disciplinary training by Faculties of Science, Medicine, and Business Administration
- Biotechnology knowledge with an emphasis on the applications on biomedical and environmental issues
- Analytical skills to connect scientific knowledge to "real-world" business
- Sense and skills in entrepreneurship and healthcare management

Career Prospects

- Leaders in the start-ups in advanced life science, health-technology, and environment solutions
- Business consultants and analysts for science and technology firms
- Management in healthcare and medical institutes

B.Sc. in

Quantitative Finance and Risk Management Science



Quantitative Finance and Risk Management Science (JS4276)

(852) 3943 0461

qfrm@cuhk.edu.hk

www.qfrm.cuhk.edu.hk

The B.Sc. in Quantitative Finance and Risk Management Science Programme (QFRM) is jointly administered by the Department of Finance and the Department of Statistics. It combines the strengths and features of two well-established and highly successful programmes from the respective departments: the Quantitative Finance programme and the Risk Management Science programme. QFRM is one of the top programmes among all quantitatively related programmes in Hong Kong in terms of admission credentials. QFRM offers a '2+2' Dual Degree Programme with the University of Edinburgh (UoE). For more information, please refer to <https://www.sta.cuhk.edu.hk/programmes/cuhk-ue/>

Highlights

QFRM provides state-of-the-art training in business and finance, risk management science, mathematics and statistics, and computing applications. Students are also required to take Faculty Package and Capstone.

- Faculty Package and Capstone
- Quantitative Finance
- Risk Management Science
- Financial Technologies and Computing
- Data Analytics and Artificial Intelligence
- Mathematics and Statistics

Career Prospects

By offering comprehensive academic and professional training, QFRM aims to nurture competent finance and risk management professionals who can work in investment banking, corporate and commercial banking, consulting, accounting and financial services, as well as in general management. QFRM also enables students to build up a solid theoretical background for pursuing further study at the Master or Ph.D. levels.

The internship programme allows students to acquire on-the-job training with the participating companies. Internships provide valuable opportunities for students to gain exposure to the professional environment, outside the classroom. QFRM students on average complete three internships prior to graduation. Some examples of internship partners are:

AIA / Bain & Company / Bank of America Merrill Lynch / Bank of China / Bank of East Asia / Barclays Capital / BNP Paribas / CASH Algo / CFA Institute / Commerzbank / Credit Suisse / Eurex Frankfurt AG / Goldman Sachs / Hang Seng Bank / HSBC / HKEX / Hong Kong Monetary Authority / Jane Street / J.P. Morgan & Chase / Morgan Stanley / PWC / Royal Bank of Scotland / State Street Global Markets / Standard Chartered Bank / UBS Securities / Western Asset Management Company

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Alumnus Sharing

QFRM is the best programme for building practical knowledge combined with solid quantitative skills. Along with strong career support and cross-faculty benefits, I have made a number of long-lasting friends who are all intelligent and supportive.

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B.Sc. in

Natural Sciences



 Non-JUPAS Scheme

 (852) 3943 3542

 nsci@cuhk.edu.hk

 www.sci.cuhk.edu.hk/nsci

The Faculty of Science is dedicated to educating and inspiring the next generation of scientific innovators and leaders. The B.Sc. in Natural Sciences Programme (NSCI) is a senior year programme designed in answer to the growing need for opportunities for further study among sub-degree holders. The way of learning science and the professional skills that are embedded in science programmes help develop students with life-long learning abilities and equip them with knowledge, skills and attitudes that are essential to be leaders of the rapidly changing world with ever-advancing technologies. This programme strives to provide a rigorous training in the sciences so that graduates will have acquired a broad knowledge in science and in-depth knowledge across several science subjects, mastered a basket of professional and generic skills for career development, and developed attitudes and values with a view to contributing to the advancement and betterment of the society.

Highlights

The Natural Sciences Programme, supported by 12 programmes of the Faculty of Science, covers a wide range of science disciplines. The normative study period for this programme is two years, during which students must complete at least 51 units of science courses, including 32 units from one of the seven concentration areas. There are more than 300 multidisciplinary science courses open to Natural Sciences students, which provide large flexibility for students to tailor-make their own study pattern based primarily on their personal interests and specialties.

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Alumna Sharing

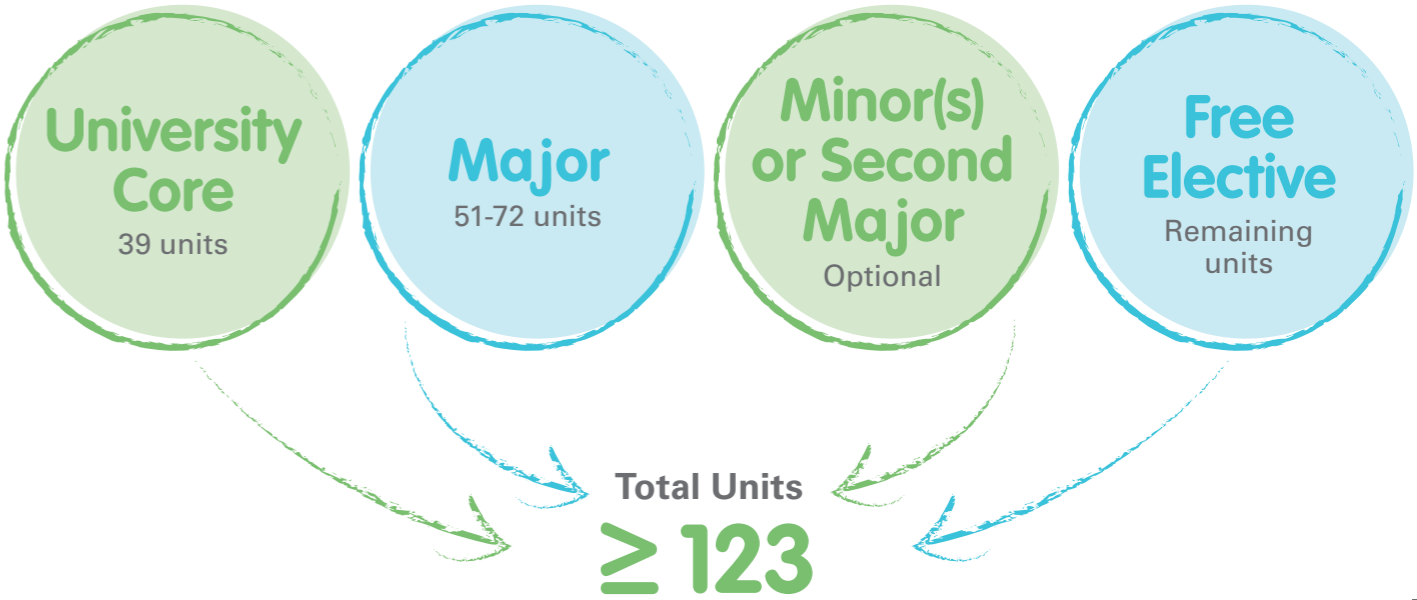
NSCI provides me with lots of opportunities to probe deeper into my interests and apply the knowledge I have learnt in different courses practically. I like the learning atmosphere at CUHK. I maintain a close relationship with my classmates; we work together for presentations and projects, motivate each other to learn and join different meaningful activities.

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Concentration	<ul style="list-style-type: none">Biological SciencesBiotechnologyEnvironmental StudiesFood and Nutrition	<ul style="list-style-type: none">Data Science	<ul style="list-style-type: none">Chemical and Testing SciencesPhysical Sciences
Study Area	<ul style="list-style-type: none">BiochemistryBiologyCell and Molecular BiologyEarth and Environmental SciencesFood and Nutritional SciencesMolecular Biotechnology	<ul style="list-style-type: none">MathematicsRisk Management ScienceStatistics	<ul style="list-style-type: none">ChemistryEarth and Environmental SciencesMathematicsPhysics

Curriculum

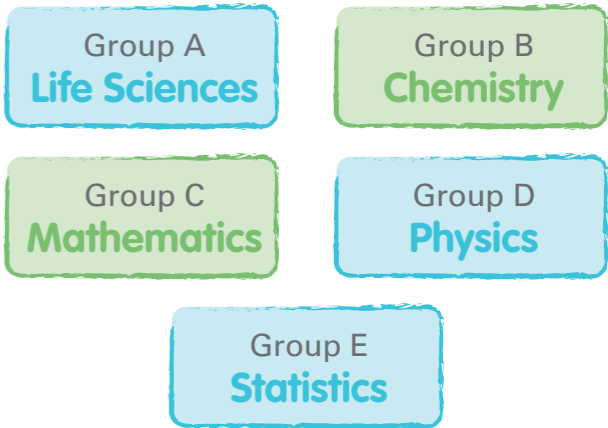
The curriculum is built on a credit-unit system, and students have to complete 123 units and satisfy requirements under separate categories. The normative period of study is four years.



Faculty Package Courses

The Faculty Package consists of building blocks for the foundational study of science in the first year. It is designed to fit students with different science backgrounds. The package contains five groups of courses.

Students should take 3-4 courses from at least 3 different groups according to their interest, ability and the specific requirements of their preferred majors.



Academic Advisory System

Every student is assigned an Academic Advisor, who provides academic and general advice on issues such as course selection, guided study and adaptation to University learning mode. The advisor also becomes a resource person and provides information on whole-person development opportunities to students or refers students to suitable units, if necessary.

Science, Technology And Research Stream (STARS)

Undergraduate research has been an integral part of our curriculum, and CUHK Science offers extensive research opportunities to our undergraduates who are interested in research and wish to challenge themselves. STARS is intended for students with strong ability and interest to gain wider exposure and research experience during their undergraduate studies.

Purposes of STARS

- To nurture students to have a broader exposure in Science
- To provide a clear path and guidance for students interested in doing research
- To offer research opportunities and training in an early stage
- To discover and develop talents



Enrolment

Students admitted to CUHK Science (via SCIENCE broad-based admission or programme-based admission) majoring in Biochemistry, Biology, Cell and Molecular Biology, Chemistry, Earth and Environmental Sciences, Food and Nutritional Sciences, Mathematics, Molecular Biotechnology, Physics, and Statistics meeting the criteria in Phase 1 or Phase 2 are eligible to enrol.

Phase 1

(Newly Admitted Students)

HKDSE Best 5 Score

31 or above (out of 35)

OR

29 or 30 (out of 35)

With one 5** in Biology

Chemistry, M1/M2, Physics

(Requirements for 2024 entry is under review.)

Non-JUPAS

Outstanding academic results upon admission

Phase 2

(End of Year 1)

with **Excellent** academic performance in their First year of studies in CUHK Science



Be one of the STARS!

STARS Alumni Sharing

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During exchange at Sweden, I learnt more specialized knowledge in fiber technology and general knowledge related to solid matter. At first, it was quite difficult for me to study Master level chemistry courses at KTH Royal Institute of Technology. However, STARS research training gave me an insight of polymer and hands-on laboratory work experience which made me easier to adapt to the classes. Through a field visit to factory of Wettex, I learnt the application of chemical knowledge in manufacturing to create sustainable product. Besides studies, I also took Swedish culture course and joined a study tour to Lapland and St. Petersburg. Every moment here was memorable!

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STARS offers me opportunities to join different laboratory experiments and attend seminars on various topics to realize my interest in research. During my exchange at UC Berkeley in the US, I extended my research interest by taking lots of intriguing courses and seminars and later recognized my passion on neurodegeneration. Inspired by this interactive learning environment, I become more confident to speak up in classes and the experience has motivated me to be a more competent learner.

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With economic support from STARS, I carried an individual research project on synthesizing azeidine modified peptide at University of Warwick in the UK. After learning how to work out a research project and experiencing the ups and downs, I become more confident in developing and executing the experiments on my own. More importantly, the study abroad experience has boosted my confidence to pursue further studies in the future.

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Experiential Learning

Our undergraduate curriculum aims at training all-rounded students who move on to be tactful contributors in all areas. The Faculty offers a diverse teaching and learning approach to ensure our students are exposed to the most suitable and effective learning methods, and become high-achieving, all-rounded individuals. In addition to our rigorous curriculum including lectures, tutorials and laboratory sessions, we encourage all students to take part in a range of activities to increase their exposure and boost their university experience. Such activities come in the form of:



Internships



Research Opportunities



Student Exchanges

Through these experiences, students are able to enhance their ability to communicate and gain world perspective, which helps to prepare them for upcoming challenges in our ever-changing world.

Internships

Taking part in an internship is a great way for students to acquire a better understanding of the working environment of a specific industry. It prepares them for employment, and helps them to establish networks before graduation. The Faculty collaborates with many partners around the world (ranging from scientific laboratories to banks; and from NGOs to corporates, etc.) to offer internship opportunities for our students, allowing them to have a taste of work and accumulate working experience, whilst getting to know other cultures.

600+
global internship
opportunities for CUHK
students every year

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Alumna Sharing

Institute: The Census and Statistics Department, HKSAR

During my summer internship, my main task was to apply deep learning techniques to classify commodity codes with a commodity description. While running a neural network, there are stringent requirements on the size of the dataset and the amount of computational power. This was valuable experience to me as it gave me a taste of what the work of a real statistician is like, especially because the projects undertaken at C&SD are demanding and call for the application of statistical theories in real-world projects.

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Research Opportunities

The Faculty operates a number of research schemes for undergraduates to take part in. Apart from working in professors' laboratories to conduct research in their areas of interest to better prepare themselves for their further studies, Undergraduate Research Exchange programmes are perfect opportunities for those who have a great interest to further develop skills and knowledge, as well as build a research profile. Students could opt to enter international competitions, such as iGEM, to attest their scientific finesse.

Examples of Undergraduate Research Programmes



COSINE



DREAM



OPUS



SMART



SURE

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Alumnus Sharing

Programme: COSINE

Institute: University of Tennessee, USA

During my summer research, I was exposed to numerous research projects including Super Resolution. Everyday morning, teammates and I updated our mentor about the research progress and then would focus on our own project. The major difficulties I encountered were compatibility of different programming packages and meeting deadlines of research projects. Teammates and I tried our best to research online to learn how to implement different kinds of programming codes. Through multiple trials and errors, we finally get more familiar with various programming languages. I learnt a lot on machine learning skills as well as current research trends. All in all, going on exchange at the University of Tennessee is really a life-changing experience.

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Student Sharing

Programme: OPUS

Institute: University of California, Berkeley, USA

During the times at U.C. Berkeley, I have greatly broadened my horizons and enriched my academic knowledge. I met a lot of new friends from all around the world. They are very friendly and we often studied to discuss assignments and find solutions to solve problems together. In addition, I also got the opportunity to learn some skills in computer science from alumni and undergraduates of U.C. Berkeley. In addition, I was lucky to get a research opportunity with the help of one of the friends I met in Berkeley. I joined a research group to work on software development for data measurement. Overall, I am very grateful that I got the chance to be an exchange student at Berkeley.

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Student Exchanges

Want to spend a year, a term or a summer at another university? We have just the right thing for you!

Our students have access to a multitude of exchange programmes, and can spend time studying abroad. There are three types of exchange opportunities:

- University-wide Exchange
- College-based Exchange
- Faculty/Departmental Exchange

Because of the broad range and flexibility of the available opportunities, we are almost certain that our students will find something that suits their desires.

280+
student exchange
programmes

Global partnerships in
40
countries / regions

The University has formal
partnerships with over
460
institutions around
the world



For complete and update information, please refer to the Office of Academic Links website.



Examples of Exchange Partners:

- Brown University
- Cambridge University
- Cornell University
- Kyoto University
- McGill University
- Nanyang Technological University
- National University of Singapore
- Peking University
- Shanghai Jiao Tong University
- University of California, Berkeley
- University of California, Los Angeles
- University of Illinois at Urbana-Champaign
- The University of Melbourne
- University of Michigan
- University of Warwick

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Alumna Sharing

Institute: Technical University of Denmark
During exchange at Denmark, I took four interesting courses: Ecology, Ocean Science and Technology, Planning and Modelling of Public Transport, and SDG Lab. In the class of Ecology, I joined field-trips to rivers and forests to learn about surveying techniques of freshwater ecosystem and collect biomass shed by the tree as well as the data of soil respiration from the beech forest. In SDG Lab, I created a consulting project about accessible and inclusive playgrounds for children with my groupmates. This project gave me insight of how start-up works in the world to address the Sustainable Development Goals. In addition, the course of Planning and Modelling of Public Transport is very interesting and I am very impressed by the sustainable strategies of Copenhagen. Therefore, I decided to devote myself in the field of urban planning and pursue a master degree in this area for my future career.

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Student Sharing

Institute: Universiti Brunei Darussalam, Brunei
Brunei has always been a mysterious and peaceful place in my mind. While travelling around the city, mosques can be found everywhere. In Brunei, I often got the chance to stay close to the nature. After learning about the biodiversity in rain forest, my friend and I joined a trip to nature reserve with a research assistant to observe wild animals and videoed their daily life. In addition, I participated in various activities, like city tour to the Sultan 75th birthday celebration and museum visit about oil resource. The lessons I took in Universiti Brunei Darussalam were also very inspiring. In a course of global issues, I remembered a professor asked if there is the possibility of other development plans for Brunei. One student proposed to research on the potential medical usage by making use of local herbs from rain forest. This idea was very inspiring and gave me a new insight in the class. All in all, being an exchange student at Brunei was an eye-opening experience to me.

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Admissions

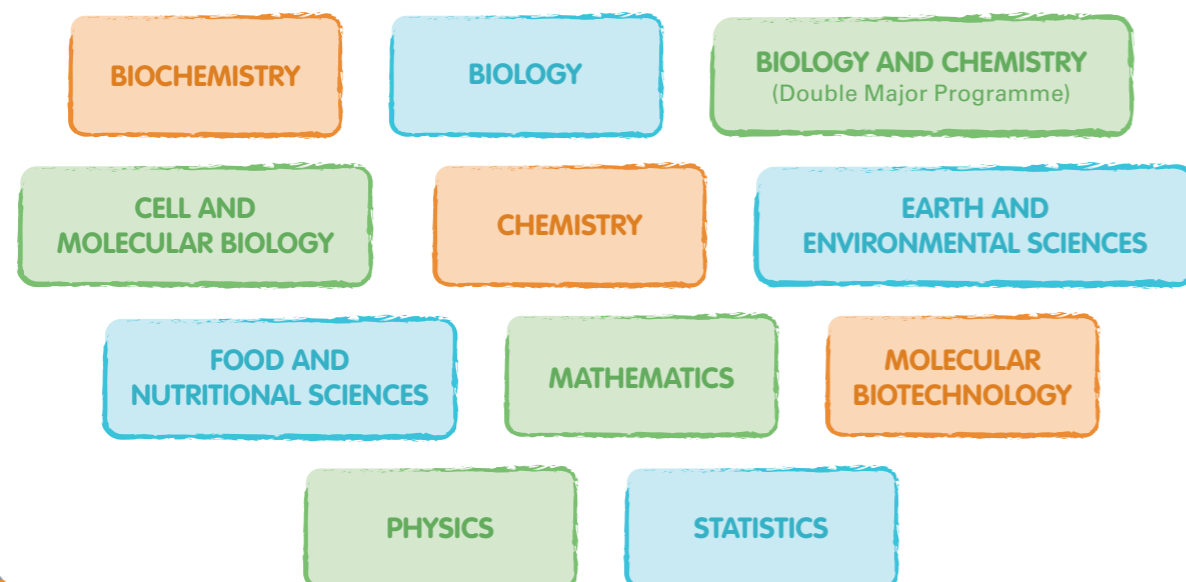
The Faculty of Science has developed a broad range of programmes to cater for students who possess different potential and interests. Two main admission schemes are designed to admit students, they are:

**SCIENCE
Broad-based
Admission**

**Programme-
based
Admission**

SCIENCE Broad-based Admission

The broad-based admission scheme allows students during their first year of study to explore their interests in the following science programmes:



Alumna Sharing

The Broad-based Admission Scheme allowed me to get opportunity to specialize in a field and explore new horizons. This is particularly valuable to freshmen and senior-year students as they are developing their interests and finding their fields.

There is no quota for a specific major, while ample academic advising will be provided to assist students in selecting their programme of study. Depending on their abilities, admitted students may be able to declare their majors at the time of entrance, or at the end of Year 1 or Year 2[^].



(Major Declaration)

[^] Students interested in the Biology and Chemistry Double Major Programme should declare their major at the time of entry or at the end of Year 1.

Joint University Programmes Admissions System (JUPAS)

Local students with Hong Kong Diploma of Secondary Education (HKDSE) results can apply through the JUPAS scheme. Applications should be submitted online through the JUPAS office website (www.jupas.edu.hk).

Applicants are required to fulfill both the University minimum requirements and programme-specific minimum requirements. For complete and update information, please refer to the JUPAS website and the Office of Admissions and Financial Aid website (OFA).

Non-JUPAS Admissions

Students fall into the following categories are considered as non-JUPAS applicants:



Non-JUPAS applications are considered on a case-by-case basis, taking into account of individual merits. Students with qualifications such as (but are not limited to) GCE/International A-Levels, International Baccalaureate (IB) Diploma, Associate Degree, Higher Diploma, high school diploma plus SAT/ACT and Advanced Placement (AP), Gao Kao in China, UEC/STPM in Malaysia, OSSD in Canada, ATAR in Australia, GSAT in Taiwan or any other equivalent, are eligible to apply for admission.

Non-JUPAS Local and International students should submit their applications directly to OFA. Current Mainland Gao Kao candidates should apply through the National Colleges and Universities Enrolment System.

For more information about all entrance requirements (including language requirements), please refer to OFA website.

Scholarships and Financial Aid

Faculty and major programmes offer admission scholarships to both local and non-local new undergraduate students on basis of their outstanding academic performance. There is no need for the students to apply for these scholarships. We will identify qualified new students and inform the selected students of the scholarship offers.

University and Colleges also provide various scholarships and financial aid. For further details, please refer to OFA website and the website of Dean of Student's Offices of Colleges.



(OFA website)

Enquiries

SCIENCE Broad-based Admission	JS4601	 (852) 3943 6327  sfo@cuhk.edu.hk
Biotechnology, Entrepreneurship and Healthcare Management	JS4725	 (852) 3943 1264  behm@cuhk.edu.hk
Earth and Environmental Sciences	JS4648	 (852) 3943 9323  eesc@cuhk.edu.hk
Enrichment Mathematics	JS4682	 (852) 3943 7988  dept@math.cuhk.edu.hk
Enrichment Stream in Theoretical Physics	JS4690	 (852) 3943 6154  physics@cuhk.edu.hk
Interdisciplinary Data Analytics and X Double Major Programme	JS4760	 (852) 3943 0800  idadm@cuhk.edu.hk
Natural Sciences	Non-JUPAS	 (852) 3943 3542  nsci@cuhk.edu.hk
Quantitative Finance and Risk Management Science	JS4276	 (852) 3943 0461  qfrm@cuhk.edu.hk
Risk Management Science	JS4719	 (852) 3943 7931  rmisc@cuhk.edu.hk




Aim High
Dream It
Believe It








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THE CHINESE UNIVERSITY OF HONG KONG

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    CUHKScience  CUHKScienceFaculty

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