



Science

Undergraduate Programmes

2021
|
2022



Create Your Unique Colour of Science

- 6901** Bachelor of Science
- 6729** Bachelor of Science in Actuarial Science
- 6224** Bachelor of Arts and Sciences (AppliedAI)
- 6212** Bachelor of Arts and Sciences
- 6119** Bachelor of Education and Bachelor of Science (5-year Double Degree)

High University Rankings



QS Asia University Rankings 2020

QS World University Rankings 2021

#3#22



THE Asia University Rankings 2020

THE World University Rankings 2021

#4#39

Global Experience

Committed to nurturing students as **global citizens**

Targeting at **100%** overseas experience by 2022

Examples of overseas experiences:

- Worldwide exchange studies
- Summer courses
- Overseas Research Fellowships
- International scientific conferences
- Field trips
- Internships

International Environment

About **40%** academic staff in the Faculty are from overseas

#2 The Most International University in the World
(THE World University Ranking 2020)

Top-ranked Scientists

(Clarivate Analytics' Essential Science Indicators 2019) **15.4%** of professoriate staff in the Faculty are the world's **top 1%** scholars

Career Prospects

Essentially **100%** employment rate
(inclusive of further studies) in the past decade

Why

HKU Science

Departments

Biological Sciences

Chemistry

Earth Sciences

Physics

Mathematics

Statistics & Actuarial Science

Research Divisions

- Chemistry
- Earth & Planetary Science
- Ecology & Biodiversity
- Mathematical & Statistical Science
- Molecular & Cell Biology
- Physics & Astronomy

Special Features for Science curricula

Young Scientist Scheme (YSS)

– Early Research Experiences for Outstanding Students in the 6901 BSc Programme



Cambridge-track under YSS

– HKU-Cambridge Undergraduate Recruitment Scheme (Natural Sciences) for selected YSS participants

- Earning 3-4 degrees upon successful completion of 2 years of studies at HKU and 2-3 years of studies at Cambridge



Intensive Majors

– Specialisation and intensive training make experts

- Biological Sciences (Intensive)
- Chemistry (Intensive)
- Ecology & Biodiversity (Intensive)
- Geology (Intensive)
- Molecular Biology & Biotechnology (Intensive)
- Mathematics (Intensive)
- Physics (Intensive)

Accreditations

– Quality assured through recognition by international professional bodies

- Royal Society of Biology, UK
- Royal Society of Chemistry, UK
- The Geological Society, UK



Articulation Pathways

– Seamless articulation to widely recognised postgraduate programmes

- Taught Postgraduate Programmes at HKU Science
- Master of Science in Biotechnology at Northeastern University
- Doctor of Veterinary Medicine (DVM) at University of Melbourne (UoMelb)

Minor in Science Entrepreneurship

– Opening the doors to entrepreneurship

- Visualises how training in science bears relevance to the real world

6901

Bachelor of

Science (BSc)

Empowers scientific intellectuals to formulate solutions to society's challenges

The Programme

- One entry in the application, with a free choice of **14 Science Majors** and **7 Intensive Majors**:

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> Biochemistry Biological Sciences Biological Sciences (Intensive)¹ Chemistry Chemistry (Intensive)² Decision Analytics Earth System Science | <ul style="list-style-type: none"> Ecology & Biodiversity Ecology & Biodiversity (Intensive)¹ Environmental Science Food & Nutritional Science Geology Geology (Intensive)³ Mathematics | <ul style="list-style-type: none"> Mathematics (Intensive) Molecular Biology & Biotechnology Molecular Biology & Biotechnology (Intensive)¹ Physics Physics (Intensive) Risk Management Statistics |
|--|--|--|

Remarks:

¹ Accredited by Society of Biology² Accredited by Society of Chemistry³ Accredited by The Geological Society

- Tackling novel situations:** Nurtures a scientifically literate population to address the global challenges that human faces and makes wise decisions informed by scientific understanding

Career prospects:

- The Faculty has got essentially 100% employment rate (inclusive of further studies) in the past decade
- Many of our graduates are holding positions that demand scientific expertise, such as environmental scientists, nutritionists, clinical scientists, meteorologists, geologists, information specialists, financial analysts, teachers and forensic scientists
- Our graduates are preferred by employers because of their numerical analytical skills, logical thinking and critical thinking

Options of 1 Major/ 2 Majors/ Major-Minor/ Major-2 Minors

- Students may take a 2nd Major or a Minor or 2 Minors in Science or non-Science disciplines

Simple and Flexible

- One entry in application for a choice of 14 Majors and 7 Intensive Majors
- Up to 2 years time to choose a Major
- Flexibility in changing Majors

Academic Advising System

- One-on-one academic advice

Key Features of Our BSc Curriculum

No Quota for any Science Major

Intensive Majors

Specialisation and intensive training make experts

- Offered alongside with the regular 96-credit Majors
- Provide students with extensive subject knowledge
- Equip students who intend to pursue research in science
- Listed in the transcript
- Having an advantage at job application and when seeking chartered status

Intensive Majors

Biological Sciences
(144 credits)*

Chemistry
(144 credits)*

Ecology & Biodiversity
(144 credits)*

Geology
(150 credits)*

Mathematics
(144 credits)

Molecular Biology & Biotechnology
(144 credits)*

Physics
(144 credits)

* Accredited by various royal societies in the UK

Intensive Majors

Curriculum Structure (240 Credits)

Spanning over 4 years of full-time study

UNIVERSITY EDUCATION
Language Courses
Common Core Courses
54
credits

INTENSIVE SCIENCE MAJOR
Science Foundation Courses
Disciplinary Courses
Capstone Courses
144-150
credits

MINOR(S) /
ELECTIVES
36-42
credits

BSc Curriculum Structure (240 Credits)

Forty 6-credit courses spanning over 4 years of full-time study

UNIVERSITY EDUCATION
Language Courses
Common Core Courses
54
credits

PRIMARY SCIENCE MAJOR
Science Foundation Courses
Disciplinary Courses
Capstone Courses
96
credits

2nd MAJOR /
MINOR(S) /
ELECTIVES
90
credits



Young Scientist Scheme

Early Research Experiences for Outstanding Students in the 6901 BSc Programme

YSS participants are guaranteed to go on exchange, visiting or summer study in a top university



Students in YSS are guaranteed with:

- Summer Research Fellowship (SRF)
- A further SRF or an Overseas Research Fellowship (ORF)
- International exchange, visiting or summer study
- Attendance to an international scientific conference
- A research mentor
- Enrolment in the Frontiers of Science Honours Seminar
- Stipends for research activities
- Entrance scholarship

*Scholarships for Non-JUPAS students are considered on case-by-case basis

In 2020, 40 students were admitted to YSS

NON-JUPAS

Selected Non-JUPAS applicants will be invited to enrol in YSS

JUPAS

Best 5 HKDSE Score of subjects* ≥ 35 (*including Category A subjects, M1/ M2)
• automatically accepted to YSS
• no interview is necessary

Notes:
6901 BSc students not admitted to YSS on entry but show excellent talent afterwards would still:
• have a second chance to enrol in YSS at a later stage
• be able to compete for SRF, ORF and/ or international exchange during their study

The HKDSE 'level to score' conversion

Category A Core and Elective Subjects and Extended Module 1 or Module 2 in Mathematics

Level	1	2	3	4	5	5*	5**
Score	1	2	3	4	5.5	7	8.5

Who are eligible to join YSS?

HKU

Young Scientist Scheme (YSS) in 6901 BSc

Earning 3-4 degrees upon successful completion of 2 years of studies at HKU and 2-3 years of studies at Cambridge

HKU-Cambridge Undergraduate Recruitment Scheme (Natural Sciences)

Cambridge-track for Selected YSS Participants in Natural Sciences Disciplines

SPECIAL FEATURE

- The Track
- A joint recruitment scheme that allows selected YSS students in the 6901 BSc programme to pursue studies in two renowned universities
 - Allows students to study abroad and experience overseas life and culture
 - Nurtures future science professionals to develop innovative solutions for global challenges
 - Ample learning opportunities in YSS
 - Summer Research Fellowship
 - Overseas Research Fellowship
 - International scientific conference
 - Guidance by research mentor

HKUer or Cantab?

Why not BOTH?

Cambridge

2 years at HKU

2 years at Cambridge

= BSc(HKU) + BA(Cantab) + MA(Cantab)*

2+1 years at Cambridge

+ 2 years at HKU

= BSc(HKU) + BA(Cantab) + MSci(Cantab) + MA(Cantab)*

* The MA is conferred by right on holders of the BA degree at Cambridge, upon application after certain years' seniority as members of Cambridge

Study Path for YSS Students in the Cambridge Scheme

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
HKU	HKU Undergraduate Degree Available for students in the 6901 BSc Programme majoring in: <ul style="list-style-type: none">BiochemistryBiological SciencesChemistryEarth System ScienceEcology & BiodiversityEnvironmental ScienceGeologyMolecular Biology & BiotechnologyPhysics		CAMBRIDGE	Cambridge Undergraduate Degree Specialisation for a Natural Sciences degree at Cambridge in year 4: <ul style="list-style-type: none">AstrophysicsBiochemistryChemistryEarth SciencesGeneticsMaterials SciencePathologyPhysicsPhysiology, Development & NeurosciencePlant SciencesZoology Or a broad Science programme: <ul style="list-style-type: none">Biological & Biomedical SciencesPhysical Sciences	
				Cambridge Master's Degree <ul style="list-style-type: none">AstrophysicsBiochemistryChemistryEarth SciencesHistory and Philosophy of ScienceMaterials SciencePhysicsSystems Biology	

How to Enroll in the Cambridge-track

JUPAS Band A applicants and selected Non-JUPAS applicants of 6901 will be invited to indicate their interest in the Cambridge-track. Those interested will undergo a selection process including an Admissions Test and an Interview.

Basic Subject requirements:

JUPAS: M1/M2 in Mathematics; Level 5 in English Language
NON-JUPAS: IB: HL Mathematics
GCEAL: Mathematics and Further Mathematics
Other Qualifications: Excellent results in Mathematics

Admissions of Students on the Cambridge-track to Cambridge



- Remarks:
- Students will study 3 science subjects in Year 3 to get prepared for the specialisation in Year 4.
 - Students who do NOT opt for a Master's degree at Cambridge will take research internships at HKU to fulfill the University's graduation requirements.
 - Students will pay HKU fees and Cambridge fees for their study at HKU and Cambridge, respectively.



Cambridge-track at YSS
qr.go.page.link/C8cec



Natural Sciences Tripos at Cambridge
qr.go.page.link/HnmPR

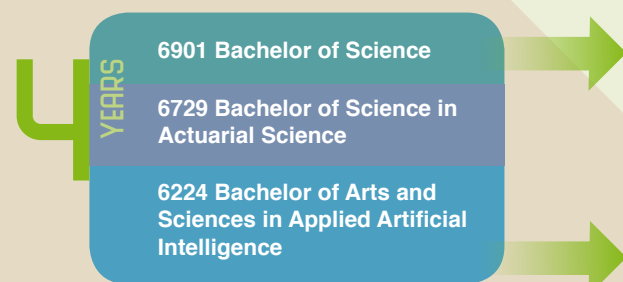
Articulation Pathways

Seamless articulation to widely recognised postgraduate programmes

Taught Postgraduate Programmes

@ HKU Science

- Attach Bachelor Programmes to HKU Science Taught Master Programmes
- Gaining 2 degrees in 5/ 5.5 years*



Full-time study mode of 1 year or 1.5 years

- Master of Statistics (MStat)
- MSc in Environmental Management
- MSc in the field of Applied Geosciences
- MSc in the field of Food Industry: Management and Marketing
- MSc in the field of Food Safety and Toxicology
- MSc in the field of Space Science

1 YEAR

- Master of Data Science (MDASC)

1.5 YEARS

- Guaranteed admission to selected outstanding students

- provides a convenient channel of specialised training for deepening knowledge in specific fields of science

- Application requirements

- Students who have completed year 3
- With a CGPA of 3.5 at graduation
- Fulfillment of the MSc/ MStat/ MDASC admissions requirements

- Quota

- No quota for the aforementioned articulation pathway except that for Master of Data Science, a maximum of 2 places will be offered each year

Remark: the list of TPG programmes for this articulation pathway is subject to change

Master of Science in Biotechnology

@ Northeastern University

- HKU Science graduates with a GPA of 3.2 or above will be eligible for direct admission to the programme
- Admitted students may elect to complete the first year of course work online, and then transfer to Northeastern's Boston or California campus to complete the remaining studies

Doctor of Veterinary Medicine (DVM)

University of Melbourne (UoMelb)

New pathway to talented students who aspire to pursue a career in veterinary

- In collaboration with University of Melbourne (UoMelb) in Australia, HKU Science will provide a pathway to 6901 BSc students of the following majors to articulate into the DVM of the UoMelb:

- Biochemistry
- Biological Sciences
- Ecology & Biodiversity
- Molecular Biology & Biotechnology
- Food & Nutritional Science

HKU BSc + UoMelb DVM

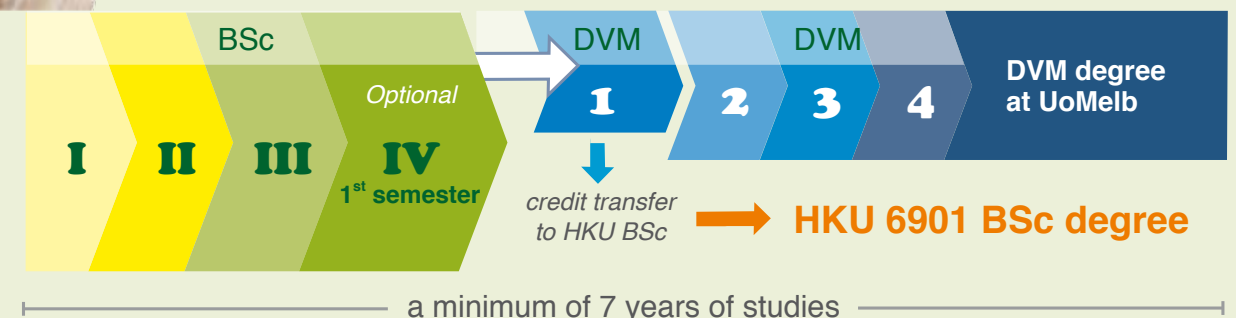
articulation pathway to the Doctor of Veterinary Medicine at the University of Melbourne



HKU 6901 Bachelor of Science



Doctor of Veterinary Medicine (DVM) at the University of Melbourne (UoMelb)



- Requirements for selected HKU Science undergraduate students

Successful completion of a minimum of 6 semesters

+ gaining 186 credits under BSc 6901 programme

- Credits obtained during the first year of DVM at UoMelb can be transferred to HKU as electives for fulfilling the credit requirements of the BSc programme (subject to relevant HKU regulations)

- Obtain 2 degrees from the 2 universities in as fast as 7 years

- the HKU BSc degree and the DVM in UoMelb

Quota: A maximum of 5 places annually

Programme fees: Students will pay HKU fees and UoMelb fees for their study at HKU and UoMelb respectively

Career aspects: Graduates can register as veterinary surgeons and practise in HK through Veterinary Surgeons Board of Hong Kong and in many countries such as Australia, UK and US

About DVM@UoMelb

- Renowned university in the global arena
- Its DVM programme ranks 16th in Veterinary Science of QS World University Rankings 2020
- Accredited by Australasian Veterinary Boards Council Inc. (Australia), American Veterinary Medical Association (USA) and Royal College of Veterinary Surgeons (UK)

Minor in Science Entrepreneurship

Opening the doors to entrepreneurship

This Minor aims at

- Broadening the horizon of our undergraduate students with respect to entrepreneurship
- Offering more competitive edge to our students via connecting their academic knowledge with the real world
- Bringing students huge insights via critical analysis of the operation of existing enterprises



Some highlights of the Minor

- Co-taught by other Faculties such as Faculty of Business and Economics
- Strong emphasis on practical experience:
 - Internship
 - Capstone project
- Mentoring offered by entrepreneurs or senior staff in industry/ business
- Incorporates new courses tailor-made for this Minor such as organisational behaviours, leadership, principles of technology entrepreneurship, science-based innovation development, strategic marketing and user analysis

Accreditations

Quality assured through recognition by international professional bodies

Royal Society of Biology, UK

- Biological Sciences, Ecology & Biodiversity and Molecular Biology & Biotechnology Intensive Majors have been conferred the accreditation
- The Ecology & Biodiversity Major is the first programme of its type accredited by RSB in Asia
- Students completed the RSB accredited programme will be awarded a certificate by the School of Biological Sciences, with authorisation by the RSB, to recognise their achievements
- Graduates will receive one year of guest membership of RSB at Associate level and this will help them to:
 - stay up-to-date with what is happening across the life sciences
 - gain additional recognition for their skills and experience
 - develop their professional network
 - demonstrate their support for the future of biology



Diverse Learning Experiences

Undergraduate Research Experiences

• Overseas Research Fellowship (ORF):

Examples:

North America

- California Institute of Technology
- Columbia University
- Cornell University
- MIT
- Stanford University
- University of California at Berkeley
- University of California at Los Angeles

Europe

- CERN
- University of Cambridge
- University College London

• Summer Research Fellowship (SRF)

• Undergraduate Research Colloquium

- Final-year projects
- Directed studies

International Exchange Studies

Over 300 partner universities in more than 40 countries, including:

North America

- University of California
- University of Chicago
- Columbia University
- Johns Hopkins University
- Stanford University
- Yale University

Europe

- University of Cambridge
- University of Oxford
- Imperial College London

Field Trips

Provide students with hands-on learning

Examples of field trip destinations:

- Kenya
- Australia
- Thailand
- Japan
- USA

Internships

Opportunities in:

- Government bodies
- Scientific laboratories
- Non-government agencies/ NGOs
- Commercial companies



Royal Society of Chemistry, UK

- Exclusively for students who wish to specialise in chemistry
- Students completed the RSC accredited Chemistry Intensive programme will be awarded a certificate by the Department of Chemistry, with authorisation by RSC, to recognise their achievements
- All students in the final year of this accredited programme are qualified to apply for membership to RSC



The Geological Society, UK

- Students completed specified Geology Intensive programme will receive an accredited degree which provides an accelerated route to achieve the qualification
- Students completed the Geological Society accredited programme will be awarded a certificate by the Department of Earth Sciences, with the authorisation by the Geological Society, to recognise their achievements
- Qualification recognised internationally and in Hong Kong, and chartered geologists are regarded as professionally equivalent to chartered engineers

6729

Bachelor of Science in Actuarial Science BSc(ActuarSc)

A gateway to the actuarial profession with internationally recognised qualification

The Programme

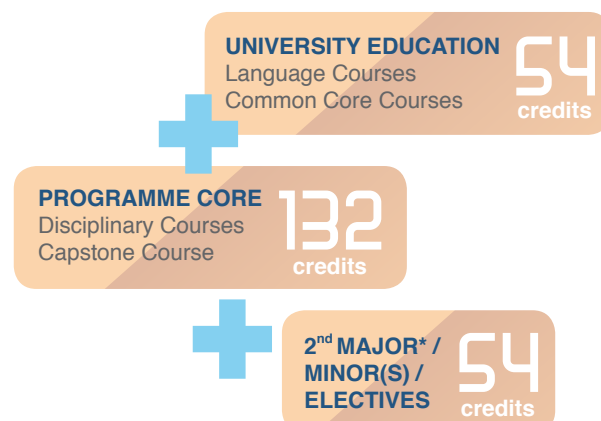
- Provides **specialist academic and professional training** in actuarial science
- Prepares students for **professional examinations to Associateship level**
 - **UK** – Institute and Faculty of Actuaries
 - **North America** – Casualty Actuarial Society and Society of Actuaries
- **Accredited by professional body**, while graduates will be exempted from various professional examinations (subject to re-accreditation)
 - **UK** – Institute and Faculty of Actuaries
- **Validation by Educational Experience (VEE)** obtained
 - **North America** – Casualty Actuarial Society, Society of Actuaries and Canadian Institute of Actuaries
- **Internship opportunities** with major insurers, actuarial consulting firms, reinsurers, investment firms, auditing firms and management consulting firms

Unique Features

- **Specialisation:** The ONLY programme in Hong Kong accredited by Institute and Faculty of Actuaries
- **Professional recognition:** The Department of Statistics & Actuarial Science has been designated a Centre of Actuarial Excellence by the Society of Actuaries since 2011
- **Career prospects:** Abundant career opportunities in Hong Kong and mainland China. Graduates develop their careers in major insurance and reinsurance companies, actuarial consulting firms and investment banks

BSc(ActuarSc) Curriculum Structure (240 credits)

Forty 6-credit courses spanning over 4 years of full-time study

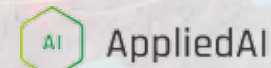


*Additional credits required

6224

Bachelor of Arts and Sciences in Applied Artificial Intelligence BASc(AppliedAI)

Impacts the world with the limitless power of AI

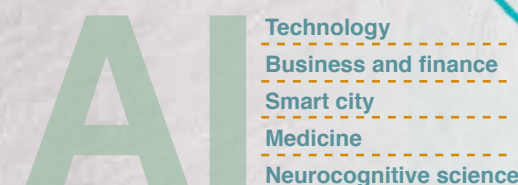


Unique Features

- **Interdisciplinary programmes for elite students:**

Provides formal academic training to elite students who wish to join the AI profession

- **Featured concentrations:**



- **Career prospects in diverse areas:**

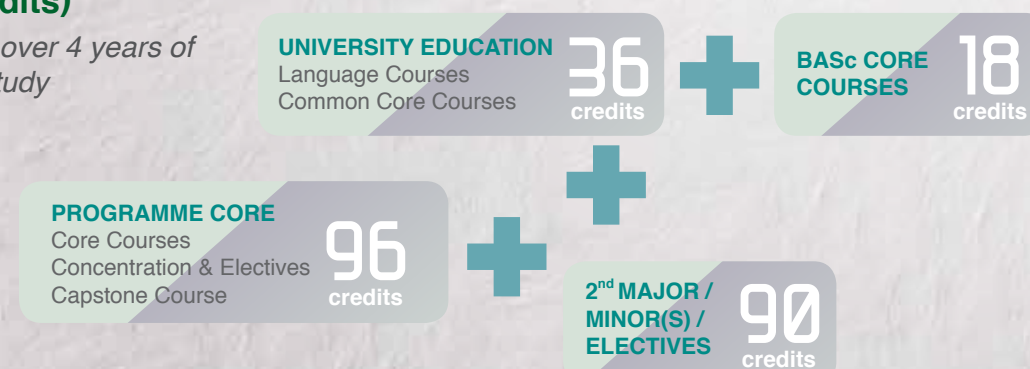
Science and technology, environmental protection, medical informatics, health care, business, banking, finance, urban development, neurocognitive science, etc.

- **Interdisciplinary training:**

Facilitates a coordinated approach in collaboration with the Faculties of Engineering, Social Sciences and Architecture

BASc(AppliedAI) Curriculum Structure (240 credits)

Spanning over 4 years of full-time study



Dr Patrick S C Poon Scholarship in Actuarial Science

- 5 scholarships are awarded annually to freshly-admitted first year students with outstanding entrance records, each at HK\$50,000 or HK\$60,000
- Renewable based on satisfactory performance in each year's study in the programme

6212

Bachelor of Arts & Sciences (BASc)

Nurtures future global leaders to make changes in interconnected world

The Programme

- Co-offered by the Faculties of Social Sciences, Arts and Science
- Designed for intellectually ambitious students who want to **develop a broad set of scholarly skills** in order to become leaders across a diverse range of fields to meet important global challenges
 - Social intelligence
 - Creative problem-solving
 - Analytical skills
 - Communication skills
 - Ethical responsibility
 - Interdisciplinary perspective in understanding our world



Unique Features

- Interdisciplinary major:** Students take disciplinary courses from the 3 Faculties and also elective courses within 2 pathways:
 - Cultures/ Societies and
 - Physical World/ Biological/ Human Sciences
- Developing intellectual toolkit:** Learn how to intertwine knowledge from various disciplines and integrate them together through
 - Case studies
 - Capstone learning
 - Experiences of thought leaders in professions
- Career prospects:** Wide career prospects in government, management consultancy, public relations, banking, public policy, environmental services, museum, heritage or science writing/ journalism and non-governmental organisation work, etc.

BASc Curriculum Structure (240 credits)

Spanning over 4 years of full-time study

UNIVERSITY EDUCATION
Language Courses
Common Core Courses

36
credits

BASc CORE COURSES

18
credits

PROGRAMME CORE

- Interdisciplinary curriculum
 - Qualitative and Quantitative Research Methods in Interdisciplinary Studies
 - Interdisciplinary Capstone Course
 - Courses from Two Pathways: (a) Cultures/ Societies (b) Physical World/ Biological/ Human Sciences
- Internship

96
credits

ELECTIVES

90
credits

6119

Bachelor of Education & Bachelor of Science (BEd & BSc)

Consolidates scientific knowledge through practical experience and teaching in science



The Programme

- 5-year Double Degree Programme
- Offered jointly by the Faculty of Education and the Faculty of Science
- Integrated programme offering both academic and professional studies
- Requires students to complete 300 credits of course units including:
 - Science courses to fulfill the requirement of a Science Major
 - Education professional core courses with the Faculty of Education

Unique Features

- Professional training:**
 - Incorporates a graduate teaching qualification equivalent to a BSc plus a Postgraduate Diploma in Education
 - Pedagogy courses and Teaching Practice in Hong Kong secondary schools
- Career prospects:**
 - Thorough knowledge of Science subject, broad understanding of educational issues, and high level of classroom expertise prepare graduates for teaching Science at all levels in local secondary and international schools
 - Graduates also find employment opportunities in industrial and government sectors in which BSc graduates are often employed

BEd & BSc Curriculum Structure (300 credits)

Spanning over 5 years of full-time study

UNIVERSITY EDUCATION
Language Courses
Common Core Courses

42
credits

SCIENCE MAJOR

96
credits

PROFESSIONAL CORE SCIENCE EDUCATION
(including Professional Practicum)

120
credits

ELECTIVES

42
credits

Admissions Requirements

JUPAS

Applicants

Minimum programme entrance requirements:

6901 BSc
6119 BEd & BSc

6729
BSc(ActuarSc)

6224 BAsC(AppliedAI)

6212 BAsC



English Language



Chinese Language



Mathematics



Liberal Studies



Elective subjects



Extended Module 1 or 2 in Mathematics

Level 3		Level 2		Level 3 [#] (two subjects)	Counted as one full elective subject
	Level 3	Level 4	Level 2		Level 4
Level 5 [^]				Level 3 (two subjects)	
		Level 2			Not counted but preferred

Remarks: [#] Elective subjects can be any Category A subject, one of them must be a Science subject

[^] Candidates with level 4 in English Language and good results in other HKDSE subjects will be exceptionally considered on a case-by-case basis. If these candidates are admitted, they will be required to take 6 additional credits in University English to complete their degree studies



NON-JUPAS Applicants

Students holding non-HKDSE qualifications are considered individually

Useful Information

HKU Undergraduate Admissions

<https://www.aal.hku.hk/admissions>



Contacts for Further Information

For  **BSc, BSc(ActuarSc) & BAsC(AppliedAI): Faculty of Science**

 www.scifac.hku.hk

 3917-2683  science@hku.hk

For  **BEd & BSc: Faculty of Education**

 web.edu.hku.hk/programme/bedbsc_6119

 3917-4659  bedbsc@hku.hk

For  **BAsC: Faculty of Social Sciences**

 www.socsc.hku.hk/basc/

 3917-1207  socscug@hku.hk



Create Your Unique Colour of Science



SHKU Science

FACULTY OF SCIENCE
THE UNIVERSITY OF HONG KONG
香港大學理學院



science.hku



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