

# SCIEDCE Undergraduate Programmes



**Interdisciplinary BASc Programmes** 

**Intensive Majors** 



**Accreditations** 

**Articulation Pathways** 

YSS Young Scientist Scheme Cambridge-track under YSS



Minor in Science Entrepreneurship

Ciedle long Unique Colong Of Science

**6901** Bachelor of Science

**6729** Bachelor of Science in Actuarial Science

**6224** Bachelor of Arts and Sciences (AppliedAl)

**6212** Bachelor of Arts and Sciences

6119 Bachelor of Education and Bachelor of Science (5-year Double Degree Programme)

SCIENCE CREATES KNOWLEDGE

# **High University Rankings**





THE World University Rankings 2021

## **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
  - 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



# **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)
- Mathematics (Intensive)
- Molecular Biology & Biotechnology (Intensive)
- · Physics (Intensive)

# **Departments**



**Physics** 



**Mathematics** 

# Chemistry

Why



**Statistics & Actuarial Science** 

# esearch Divisions

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

# **Accreditations**



- Quality assured through recognition by international professional bodies
- Royal Society of Biology, UK
- · Royal Society of Chemistry, UK
- · The Geological Society, UK



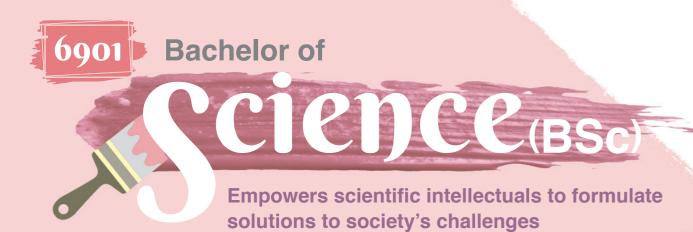
# **Articulation Pathways**

- 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

# Minor in Science Entrepreneurship

- Opening the doors to entrepreneurship
- · Visualises how training in science bears relevance to the real world





# **The Programme**

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

Ecology & Biodiversity

Environmental Science

Geology (Intensive)<sup>3</sup>

· Food & Nutritional Science

- Biological Sciences
- Biological Sciences (Intensive)<sup>1</sup>
- Chemistry
- Chemistry (Intensive)<sup>2</sup>
- Decision Analytics
- · Earth System Science
- Remarks: Accredited by Society of



<sup>2</sup> Accredited by Society of

Geology



Mathematics

Accredited by The Geological

Ecology & Biodiversity (Intensive)<sup>1</sup>
 Molecular Biology & Biotechnology

Physics

Statistics



- 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
- Our graduates are preferred by employers because of their numerical analytical skills, logical thinking and critical thinking

# **BSc Curriculum Structure** (240 Credits)

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

> **UNIVERSITY EDUCATION** Language Courses Common Core Courses



PRIMARY SCIENCE MAJOR Science Foundation Courses Disciplinary Courses Capstone Courses





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

Mathematics (Intensive)

Physics (Intensive)

· Risk Management

Molecular Biology & Biotechnology (Intensive)<sup>1</sup>

 Students may take a 2<sup>nd</sup> Major or a Minor or 2 Minors in Science or non-Science disciplines

## **Academic Advising** System

· One-on-one academic

# 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

# 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



**Majors** 

Geology (150 credits)<sup>\*</sup>

> Mathematics (144 credits)

(144 credits) Molecular

**Physics** 

Biology & Biotechnology (144 credits)\*

Intensive

\* Accredited by various royal societies in the UK

# **Intensive Majors**

**INTENSIVE SCIENCE MAJOR** 

Science Foundation Courses

Disciplinary Courses

Capstone Courses

# **Curriculum Structure** (240 Credits)

Chemistry

(144 credits)<sup>3</sup>

Spanning over 4 years of full-time study

Biological

Sciences

(144 credits)\*



**UNIVERSITY EDUCATION** 

Language Courses Common Core Courses

MINOR(S)/











# **Young Scientist Scheme**

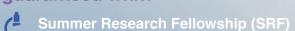
**Early Research Experiences for Outstanding** Students in the 6901 BSc Programme

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

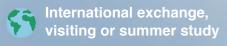




## Students in YSS are quaranteed with:



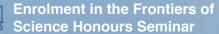




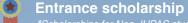




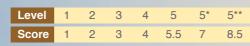








Category A Core and Elective Subjects and Extended Module 1 or Module 2 in Mathematics



(\*including Category A subjects, M1/ M2)

automatically accepted to YSS

· no interview is necessary

UNIVERSITY OF CAMBRIDGE



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

The Track

**Undergraduate Recruitment Scheme** (Natural Sciences)

# **HKU-Cambridge**

Cambridge-track for Selected YSS Participants in Natural Sciences Disciplines



BSc programme to pursue studies in two renowned universities

innovative solutions for global challenges

A joint recruitment scheme that allows

selected YSS students in the 6901

Allows students to study abroad and experience

Nurtures future science professionals to develop

Ample learning - Summer Research Fellowship opportunities in YSS - Overseas Research Fellowship

- International scientific conference

- Guidance by research mentor

2 years at HKU

2+1 years at Cambridge

2 years at Cambridge

Neuroscience

Physical Sciences

Plant Sciences

Zoology

YEAR 4

overseas life and culture

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 member of Cambridge

YEAR 5

Cambridge

**Master's Degree** 

Study Path for YSS Students in the Cambridge Scheme

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

# **HKU Undergraduate Degree**

YEAR 2

Available for students in the 6901 BSc Programme majoring in:

Physics

- Biochemistry Molecular Biology • Biological Sciences & Biotechnology
- Chemistry

YEAR I

- Earth System Science
- Ecology & Biodiversity
- Environmental Science
- Geology

# YEAR 3

#### **Cambridge Undergraduate Degree** Specialisation for a Natural Sciences degree at Cambridge in year 4:

- Astrophysics
- Biochemistry

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- Chemistry
- Farth Sciences
- Genetics Materials Science
- Pathology
- Or a broad Science programme: • Biological &

**Biomedical Sciences** 

#### Physics Biochemistry Physiology, Development &

in Year 4.

graduation require

respectively.

- Chemistry
- Earth Sciences

Astrophysics

- History and Philosophy
- of Science
- Materials Science
- Physics
- Systems Biology

1. Students will study 3 science subjects in Year 3 to get prepared for the specialisation

2. Students who do NOT opt for a Master's

degree at Cambridge will take research internships at HKU to fulfill the University's

3. Students will pay HKU fees and Cambridge

fees for their study at HKU and Cambridge,

# 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:**

M1/M2 in Mathematics; Level 5 in English Language

IB: HL Mathematics

GCEAL: Mathematics and Further Mathematics Other Qualifications: Excellent results in Mathematics

# Admissions of Students on the Cambridge-track to Cambridge









Cambridge-track at YSS grgo.page.link/C8cec



Natural Sciences Tripos at Cambridge

invited to enrol in YSS

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

Selected Non-JUPAS applicants will be Best 5 HKDSE Score of subjects\* ≥ 35

Imperial College

**OXFORD** 

Who are eligible to join

· be able to compete for SRF, ORF and/ or international exchange during their study

In 2020, 40 students were admitted to YSS

The HKDSE 'level to score' conversion

by Cambridge

Number of students selected for each cohort normally will not exceed 60% of the YSS population

# rticulation Pathways

Seamless articulation to widely recognised postgraduate programmes

# **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, Biochemistry HKU Science will provide a pathway to 6901 BSc students of the following majors to articulate into the DVM of the UoMelb:

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

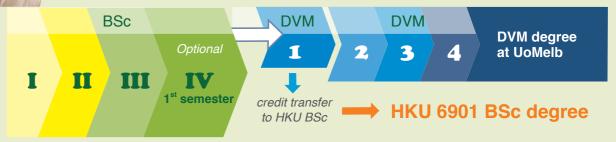
#### HKU BSc + UoMelb DVM

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





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



a minimum of 7 years of studies

 Requirements for selected HKU Science undergraduate students Successful completion of a minimum of semesters

gaining 186 credits under BSc 6901 programme

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- 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

# **Taught Postgraduate Programmes**

# HKU Science

· Attach Bachelor Programmes to HKU Science **Taught Master Programmes** 

Gaining 2 degrees in 5/5.5 years

6901 Bachelor of Science

6729 Bachelor of Science in **Actuarial Science** 

6224 Bachelor of Arts and Sciences in Applied Artificial

#### 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
- Master of Data Science (MDASC)

#### 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
- 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

Quota

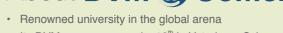
# **Master of Science in Biotechnology**

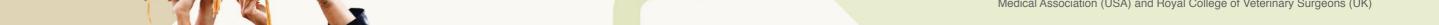
# Northeastern University

- 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

# About **DVM** @ **UoMelb**

- Its DVM programme ranks 16<sup>th</sup> 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)





# inor Science Entrepreneurship Opening the doors to entrepreneurship

STart

## 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





research

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create

Royal Society of

Biology

**Accredited Degree** 

- 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, sciencebased innovation development, strategic marketing and user analysis

# Undergraduate Research Experiences

iverse Learning 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
- The 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
- ThailandJapan
- 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

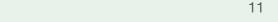
# Ccreditations

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
- 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





# Bachelor of Science in Cital Science 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
- of Actuarial **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



# 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

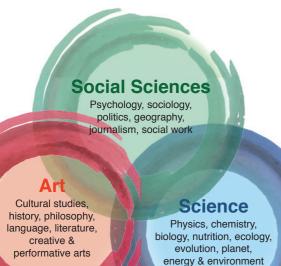
#### Bachelor of Artificial Intelligence BASc(AppliedAI) Impacts the world with the limitless power of Al Highlights diverse Al applications **AppliedAl** to help students to develop intellectual capacity formeeting new challenges Delivers both fundamental and **Unique Features** Emphasises problem-based practical knowledge learning with a wide range in the design and · Interdisciplinary programmes of courses: computer science, construction of geography, mathematics, psychology, for elite students: intelligent systems statistics and urban studies Provides formal academic training to to fit into different career elite students who wish to join the Al settings profession Featured concentrations: Nurtures students to transfer interdisciplinary **Technology** scientific knowledge **Business and finance** into a range of integrated Smart city applications and technological Medicine innovations **Neurocognitive science** 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 **UNIVERSITY EDUCATION** BASc CORE Language Courses full-time study Common Core Courses PROGRAMME CORE Core Courses Concentration & Electives 2<sup>nd</sup> MAJOR / Capstone Course MINOR(S) / **ELECTIVES**

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12 \*Additional credits required



- · 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



# **Unique Features**

- Interdisciplinary major: Students take disciplinary courses from the 3 Faculties and also elective courses within 2 pathways:
- (1) Cultures/ Societies and
- (2) 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



**BASc CORE COURSES** 



#### **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





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
- 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



PROFESSIONAL CORE SCIENCE EDUCATION (including Professional Practicum)







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# **Admissions Requirements**

## **Applicants**

Minimum programme entrance requirements:



BSc(ActuarSc)

6224 BASc(AppliedAl)

**6212** BASc



Level 3

Level 5<sup>^</sup>











English Chinese Language Language

Level 3

Mathematics

Level 4

Level 2

Liberal Studies

Elective subjects **Extended Module** 1 or 2 in Mathematics

Level 3<sup>#</sup>

Counted as one full elective

Level 2

(two subjects)

subject

Level 2 Level 4

> Level 3 (two subjects)

> > 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



Students holding non-HKDSE qualifications are considered individually

# **Useful Information**

**HKU Undergraduate Admissions** 



# **Contacts for Further Information**

Your Unique Colour of Science BSc, BSc(ActuarSc) & BASc(AppliedAI): Faculty of Science

mww.scifac.hku.hk

3917-2683 Science@hku.hk



**BEd & BSc:** Faculty of Education

n web.edu.hku.hk/programme/bedbsc\_6119

**(**) 3917-4659

bedbsc@hku.hk



**BASc:** Faculty of Social Sciences

mww.socsc.hku.hk/basc/

**(**) 3917-1207

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