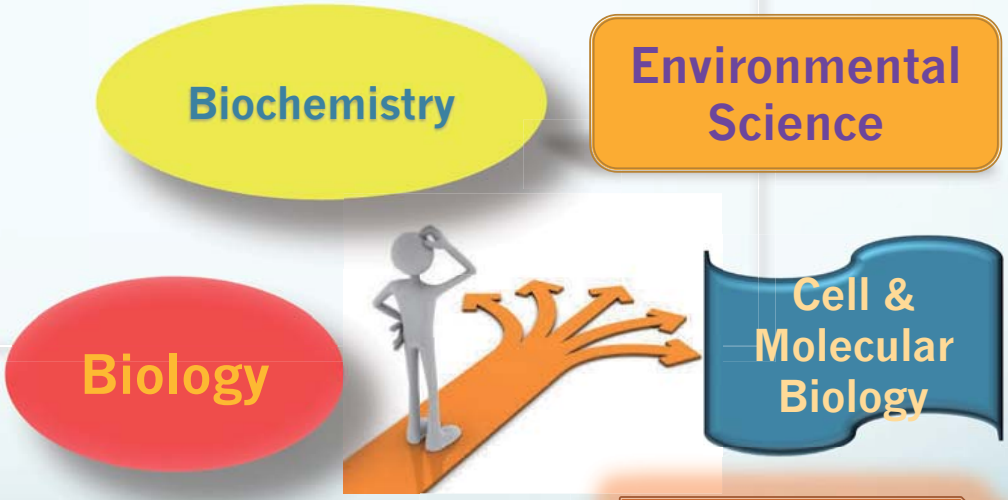
School of Life Sciences
The Chinese University of Hong Kong
生命科學學院

School of Life Sciences
Academic Counselling
for First Year Science Students

Date: 19th April 2018 (Thursday)
Time: 5:15 pm
Venue: L1 Science Centre
Speaker: Professor K.M. Chan



TOPICS:

[1] your comments on our foundation courses?
[2] how to choose your major programs?
[3] how to get good grades for your study?
[4] LSCI 2005

School of Life Sciences

The Chinese University of Hong Kong

生命科學學院

FNSC

CMBI

MBTE

BIOL

BCHE

ENSC

Established in 1994

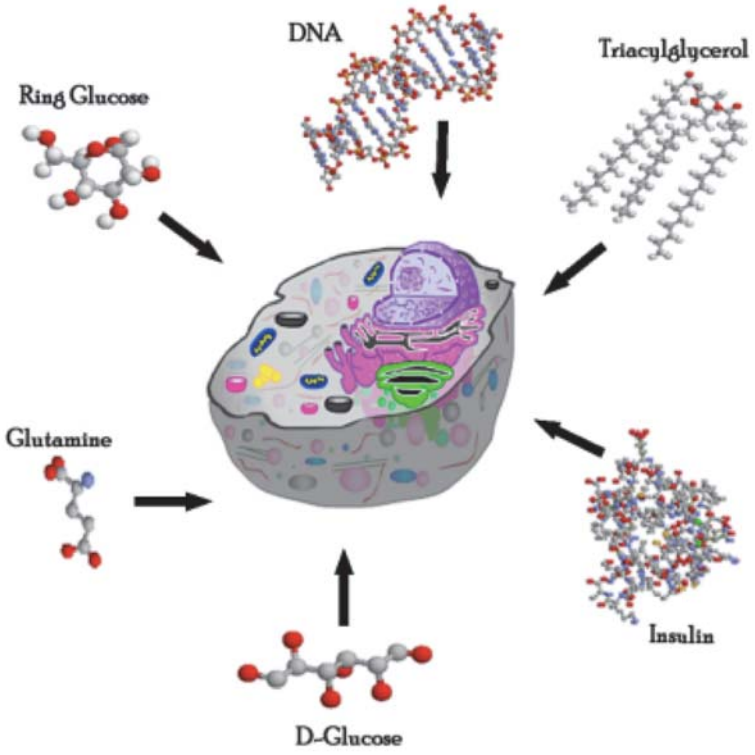
Environmental Science

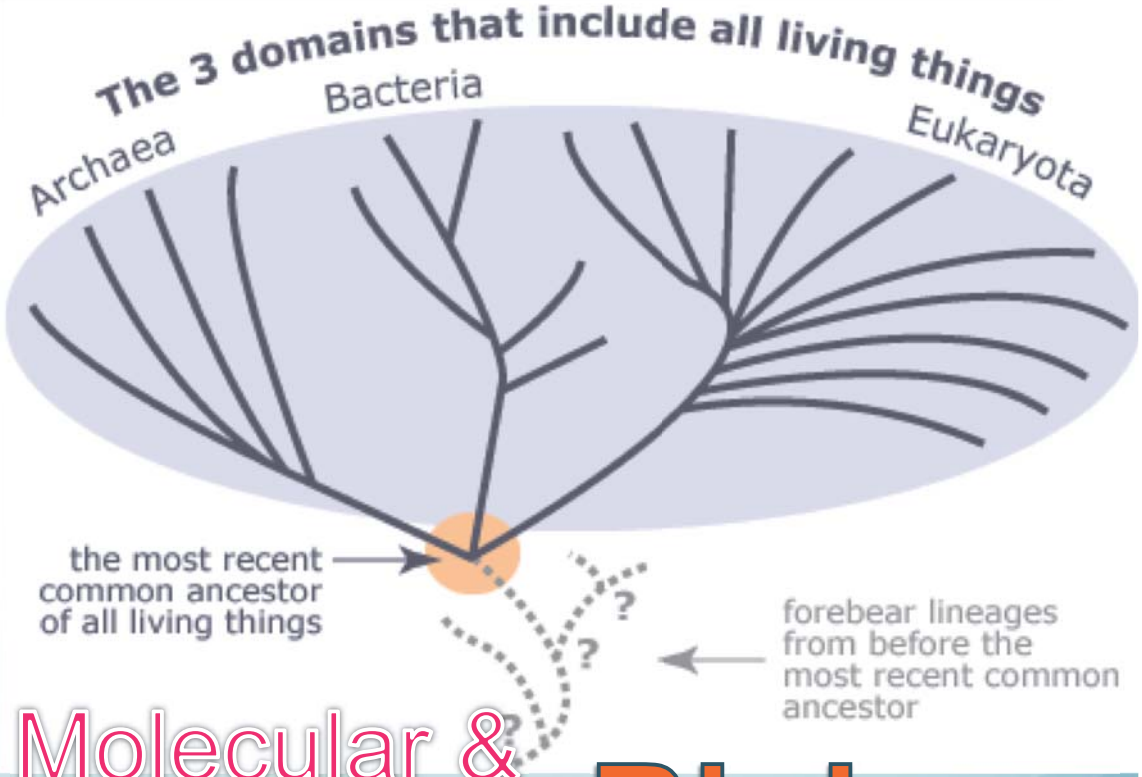
Established in 1994

Food & Nutritional Sciences

Established in 1998

Molecular Biotechnology





Biochemistry

Established in 1971

Molecular & Cell Biology

Established in 2008

Biology

Established in 1963

Foundation Courses
(Faculty Package min 9 units)

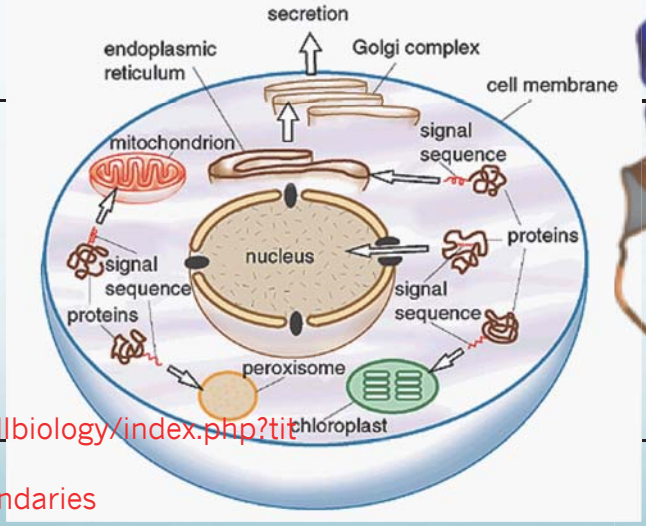
Biological Sciences

- LSCI 1000 Biochemistry of Health and Disease
  for Minor students (non-majors)
- *LSCI 1001 Basic Concepts in Biological Sciences*
  Take it prior to 1002, for those
  never did Biology in High School
- **LSCI 1002 Introduction to Biological Sciences**
  ALL Major students must take, offered
  in both terms
- LSCI 1003 Life Sciences for Engineers
  (e.g. Biomedical Engineering students)

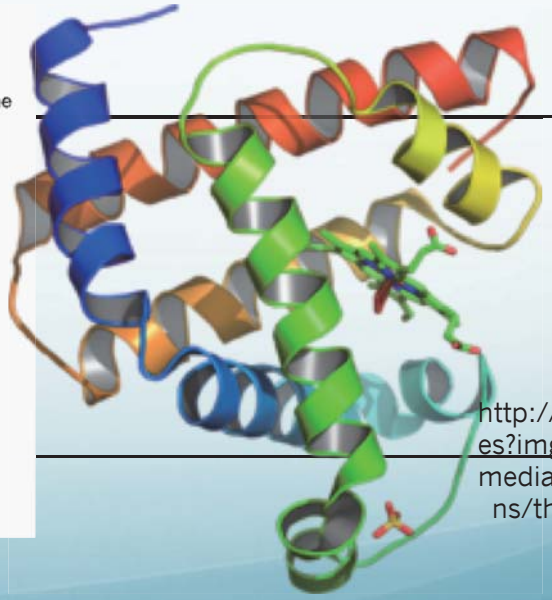
Foundation- 1st term Curriculum: Same for all six programs of LSCI students

First Term

BCHE2030 Fundamentals of Biochemistry (3 units)
BIOL2120 Cell Biology (3 units)
LSCI2002 Basic Laboratory Techniques in Life Sciences (2 units)
LSCI2003 Scientific Conducts and Ethics (2 units, elective course; ENSC required)



http://php.med.unsw.edu.au/cellbiology/index.php?title=2010_Foundations_-_Cells,_organelles_and_cell_boundaries



http://www.google.com/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/thumb/6/60/Myoglobin.png

Foundation Courses

Year 1 Faculty Package	Biology Biodiversity	Chemistry/Lab Organic Chemistry	Physics, Math, or Statistics	General Education Languages
Year 2 (Term 1)	Cell Biology	Biochemistry	Basic Lab Techniques	Scientific Conduct and Ethics (ENSC required)
Year 2 (Term 2)	##Introductory Courses from Programs	Ecology/Lab	Genetics/Lab	"Minor Electives" Language
Year 3/4	Program Core Courses	Major Electives	Capstone Courses	Minor Courses

Students may like to take the introductory courses in Year 1.

Be prepared to take your intended minor courses

Course	Unit	BCHE	BIOL	CMBI	ENSC	FNSC	MBTE
BIOL 2120 Cell Biology	3						
BCHE 2030 Fundamentals of Biochemistry	3						
BCHE 2000 Frontiers of Biochemistry	2		YEAR TWO COURSES				
BIOL 2210 Ecology	3						
BIOL 2213 Ecology Lab	1		#				
BIOL 2410 General Genetics	2						
BIOL 2313 Genetics Lab	1		#				
CMBI 2200 Literature Survey….	2						
ENSC 2270 Intro. Environ. Sci.	3						
FNSC 2001 Intro to Food Sci. and Technol.	2	FNSC3180 Food Microbiology (5 U; may take General Microbiology prior to taking this course)					
FNSC 2002 Nutrition for Health	2						
MBTE2000 Intro. Mol. Biotech	2						
MBTE 2010 Biodiversity of Life: Applications & Sustainability	2						

Example of course selection:
Most likely BCHE, maybe CMBI or FNSC

Second Term	
BCHE2000	Frontiers in Biochemistry (2)
BIOL2210	Ecology (3)
BIOL2213	Ecology Lab (1)
BIOL2410	General Genetics (2)
BIOL2313	Genetics Lab (1)
CMBI2200	Literature Survey in CMB & Scientific Communication (2)
ENSC2270	Introduction to Environmental Science (3)
FNSC2002	Nutrition for Health (2)
FNSC3180	Food Microbiology (3)
MBTE2000	Introduction to Molecular Biotechnology (2)
MBTE2010	Diversity of Life: Applications and Sustainability (2)

5 Units **+** ***2 Units*** **+** ***5 Units*** **=** ***12 Units***

Students are advised to take < 12 units,
and explore your minor and elective courses

BAD IDEA NOT TO DECIDE YOUR MAJORS EARLY

Missions

Professional training:

- ✓ *Concepts and mechanism of biochemical processes.*
- ✓ *Independent research and training on the latest biochemical technology.*

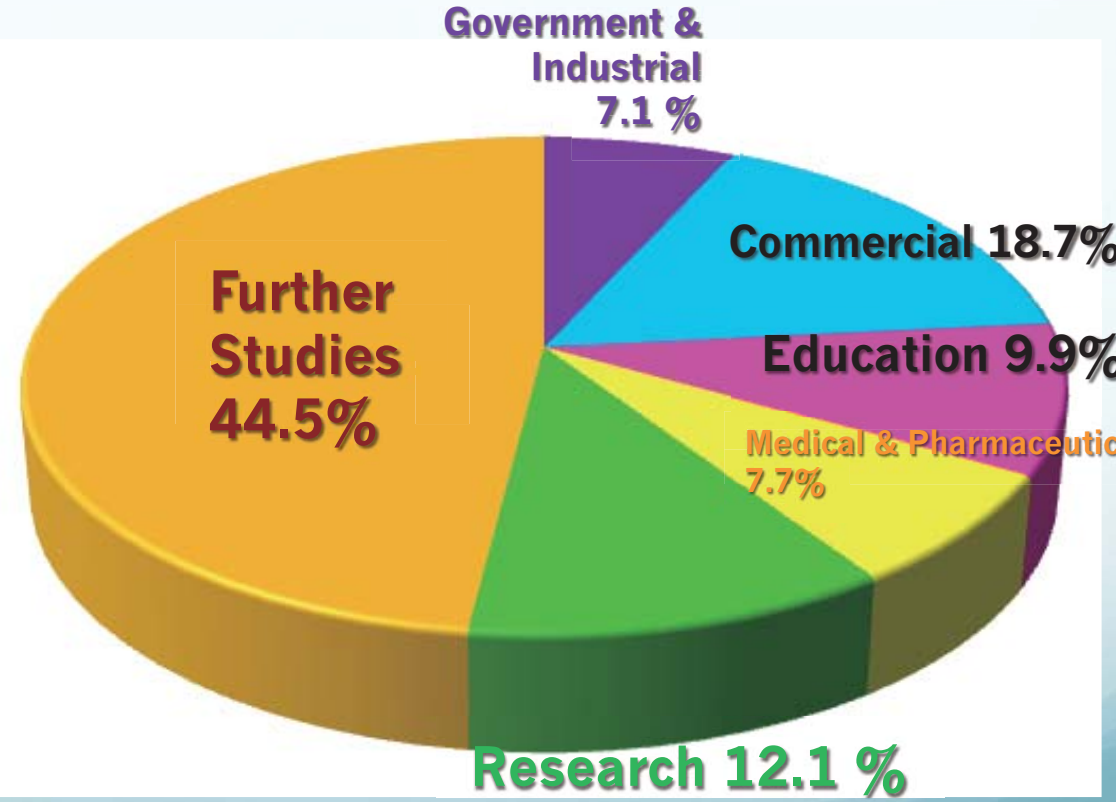
Personal development:

- ✓ *Ability of critical thinking, a proactive and responsible attitude and efficient communication skills.*

http://www.sls.cuhk.edu.hk/index.php/bche

生物化學課程
Biochemistry Programme

Careers of Biochemistry Graduates (2012-2016)



Biochemistry Program Requirements

- BCHE2000 Frontiers in Biochemistry (2U)
- BCHE2030 Fundamentals of Biochemistry (3U)
- BIOL2120 Cell Biology (3U)
- LSCI2002 Basic Laboratory Techniques in Life Sciences (2U)

Year 2 : Fundamental Courses (18 units)

- BIOL2410 General Genetics (2U) & BIOL2313 Lab (1U)
- BCHE3050 Molecular Biology (2U)
- BCHE3070 Recombinant DNA Techniques (1U)
- BCHE3650 Molecular Biology and Recombinant DNA Lab (2U)

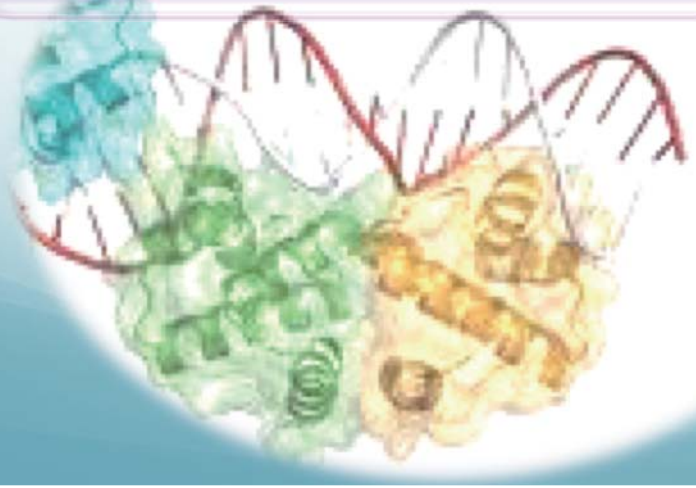
Year 3 - 4: Fundamental and Specialized Topics (16 units) + Elective courses (17 units)

- BCHE3030 Methods in Biochemistry/Lab (3+2U)
- BCHE3040 Proteins and Enzymes (3U)
- BCHE3080 Bioenergetics and Metabolism (3U)
- BCHE3092 Self-Study Modules in Biochemistry (3U)
- LSCI4000 Literature Research in Life Sciences (3U)
- or BCHE4901/2/3 Senior Experimental Project (2/2/2U)
- or BCHE4910 Group Research in Biochemistry (3U)

Major Elective Courses (> 17 U) for Different Career Paths

List A: BCH Major Electives
(> 9U with a lab course)

- Clinical Biochemistry
- Aspects of Neuroscience
- Molecular Endocrinology
- Medical Biochemistry Lab.
- Basic and Applied Immunology / Lab.
- Biochemistry for Sport and Exercise
- Biochemistry Forensic Sciences
- Management and Accreditation of Biochemical Lab.



Clinical / Biomedical Sciences

- Nutrition and Human Development
- Introduction to Medical Nutritional Therapy
- Human Genetics
- Statistical Techniques in Life Sciences

Research / Biomedical technology

- Protein Folding, Proteomics
- Animal / Microbial Biotechnology
- Biochemical Toxicology/Lab
- Statistical Techniques in Life Sciences
- Synthetic Biology Workshop

Biochemistry for Environmental Health

- Animal Biotechnology
- Environmental & Biochemical Toxicology/Lab
- Environmental Health
- Statistical Techniques in Life Sciences

http://www.sls.cuhk.edu.hk/index.php/biol

BIOLOGY PROGRAM

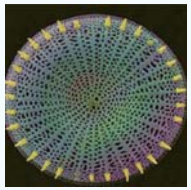
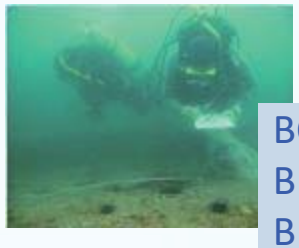
Our Missions

1. To provide our students with the **core knowledge** in biological sciences
2. To prepare our students with great competence in understanding **biological issues** and appreciation of biological knowledge, with awareness in biological **conservation** and other environmental issues
3. To develop students' **generic skills** in scientific thinking and communication, problem solving and IT

Study Packages

BIOLOGY

Organismic Biology

BIOL3530 Plant Physiology
BIOL3630 Animal Physiology
BIOL3710 Marine Biology*
BIOL4012 Field and Environmental Biology
BIOL4032 Physiological Investigation
BIOL4260 Conservation Biology
BIOL4510 Hong Kong Flora and Vegetation

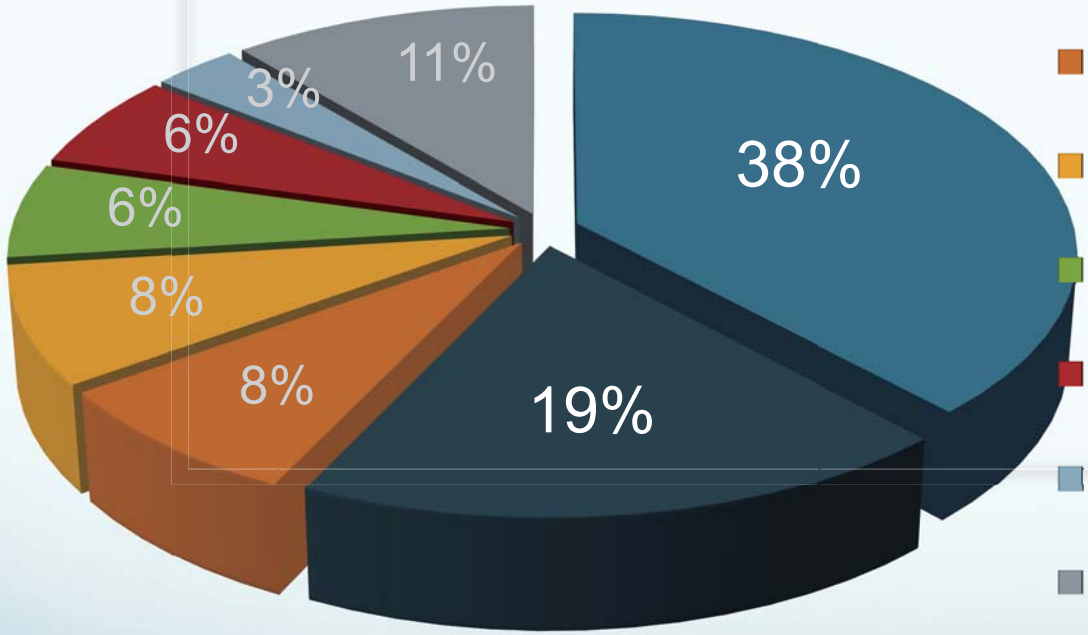
Biology for Teaching Career


BCHE3050 Molecular Biology or MBTE4320 Genetic Engineering
BIOL3310 Human Biology
BIOL3530 Plant Physiology*
BIOL3630 Animal Physiology* or FNSC 4101 and FNSC4102 Human Physiology for Nutrition Studies I and II
BIOL3710 Marine Biology
BIOL4032 Physiological Investigation
BIOL4120 Developmental Biology
ENSC 3520 Environmental and Biochemical Toxicology

Human Biology

BIOL3310 Human Biology*
BIOL4120 Developmental Biology
BIOL4310 Human Genetics*
BCHE4040 Aspects of Neuroscience
BCHE4060 Basic and Applied Immunology
BCHE4090 Biochemistry for Sport and Exercise
CMBI4101 Cancer Cell Biology
CMBI4102 Stem Cell Biology
FNSC3010 Nutrition and Human Development
or FNSC 4101 and FNSC4102 Human Physiology for Nutrition Studies I and II

Career Prospects of Biology Graduates 2012-14



- Further Studies
- Scientific / Research Work
- Administration / Management
- Education
- Medical & Health Services
- Sales / Marketing
- Government
- Others
  - Art / Design
  - Customer Service
  - eBusiness
  - Purchasing / Trading
  - Social Work / Community Work
  - Telecommunications

Cell and Molecular biology (CMB)

http://www.sls.cuhk.edu.hk/index.php/cmbi

YEARS 1 & 2

General Science Courses (Faculty Package)

Fundamental courses in Life Sciences
Introduction to Scientific Writing & Communication

YEARS 3 & 4

STudent-Oriented Teaching (STOT)

1-on-1 meetings with professors to learn a CMB-related topic in 1 year

Diversity in Core Courses

Organelle Structure & Function

Genomics & Transcriptomics

Cancer Cell Biology

Neuronal Cell Biology

Stem Cell Biology

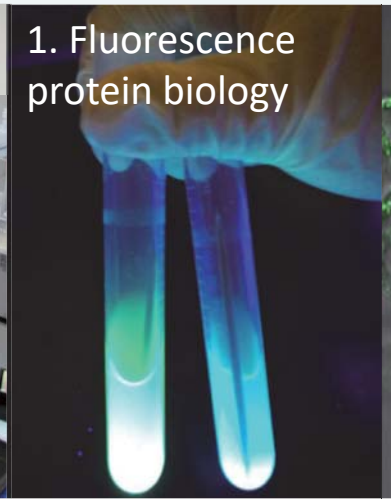
Laboratory Training

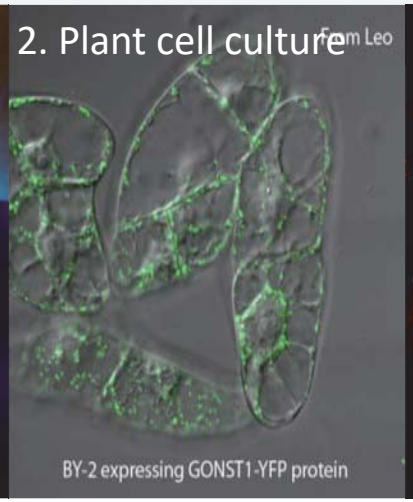
Project-based lab courses span the entire year 3

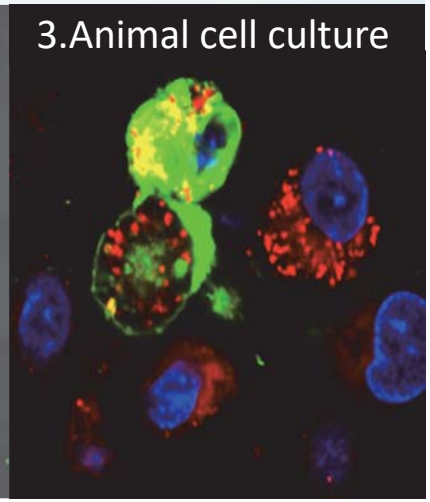
Final Year Project lets you work in a real research lab

Features of CMB Program

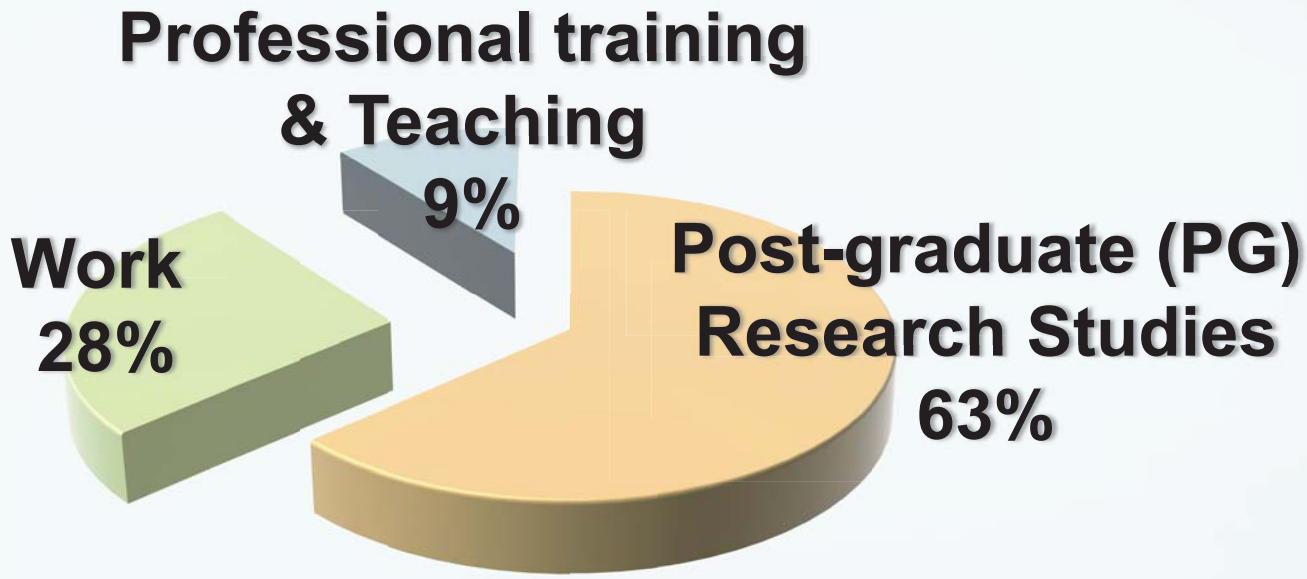
- Focus on **Scientific writing**, **Critical thinking** & **Self-motivated learning**
- **Regular extensive supervision** by Professors to learn CMB-related topics
- **10 hrs./ week of Lab Training** with **Project-based experiments**







Career Paths of CMB Graduates



Year	Total # of graduates	% students entering PG studies	Examples of Study Program
2013 to 2018	68	59%	PhD or MPhil (CUHK); PhD (Stanford, USA); PhD (Cornell, USA); PhD (Max Planck Institute, Germany); PhD (U Penn, USA); PhD (Karolinska Institute, Sweden) PhD (Johns Hopkins, USA)

ENVIRONMENTAL SCIENCE PROGRAM

Selected Job Profiles:

Mr. Chickee Chow
Consultant, Environmental Resources Management (ERM)

Ms Carol Kwok
Sustainability Manager, New World Development Co. Ltd.

Dr. Eric Sze
Assistant Professor, Open University of Hong Kong

Mr. Alfred Tang
Senior Compliance Engineer, Avery Dennsion Corporation

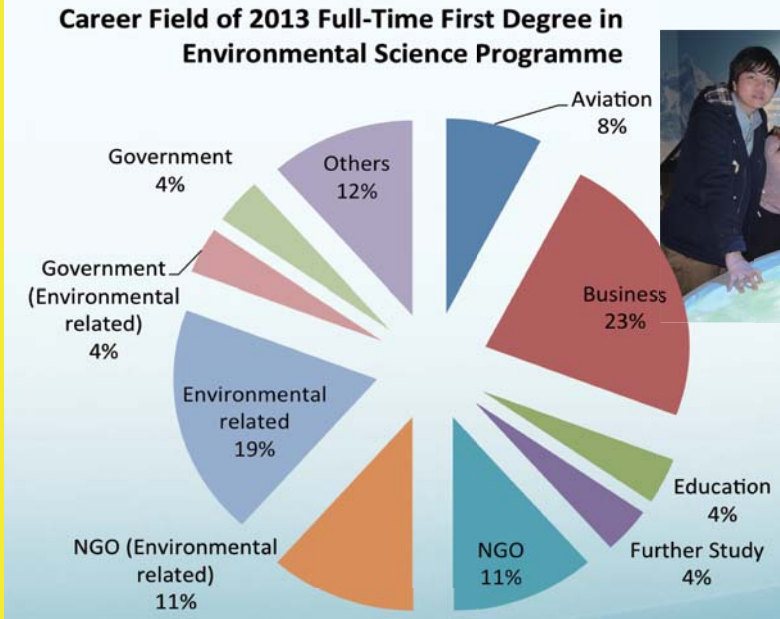
Mr. F F Yeung
Country Parks Officer, AFCD, HKSAR Government

Dr. Patrick Yeung
Project Manager (Marine), World Wide Fund

Miss W Y Yiu
Environmental Protection Officer, EPD, HKSAR Government

OUR MISSIONS

1. To provide students with a wide ***multidisciplinary*** background of Environmental Science.
2. To prepare students with a high level of competence in ***scientific understanding*** of various environmental issues.
3. Two concentrations: Environmental **Management** and Environmental **Technology**.



Environmental Integrity & Excellence

http://www.sls.cuhk.edu.hk/index.php/ensc

Core courses

2/4 (Basic Courses)

- BIOL2120 Cell Biology
- LSCI2002 Basic Laboratory Techniques in Life Sciences
- BCHE2030 Fundamentals of Biochemistry
- ENSC2270 Introduction to Environmental Science
- BIOL2210/2213 Ecology/Lab
- LSCI2003 Scientific Conduct and Ethics

3/4 (Fundamental & Specialized Courses)

- ENSC2515/2517 Environmental Chemistry/Lab
- ENSC3415/3417 Environmental Instrumentation Techniques/Lab
- ENSC3520/3820 Environmental & Biochemical Toxicology/Lab

4/4 (Capstone courses) > 4 Units

- ENSC4901/4902/4903 Senior Experimental Project I, II, III/(2-6 units)
- LSCI4000 Senior Literature Research 3 units
- Internship (ENSC4906) 2 Units or
- Field Study(ENSC4907) 2 units

Major Elective Courses (> 23 units)

ENSC3230 Principles of Environmental Protection & Pollution Control (3 U)(or GRMD3230)

ENSC4240/4242 Environmental Impact Assessment/Lab (3 + 2 U)

ENSC4250/4252 Environmental Health (3 U)

ENSC4525 Advanced Environmental Chemistry (3 U)

ENSC4535 Chemical Treatment Processes (3 U)

At least 11 units from above

http://www.sls.cuhk.edu.hk/sls_media/sls/Documents/ENSC_2017_Handout-r1.pdf

Course Code	Course Title	Unit
BIOL3012	Biodiversity Laboratory I	2
BIOL3022	Biodiversity Laboratory II	2
BIOL3410	General Microbiology	3
BIOL3550	Plant Biology	4
BIOL3560	Biology of Fungi and Non-Vascular Plants	2
BIOL3570	Biology of Vascular Plants	2
BIOL3610	Invertebrate Form and Function	2
BIOL3620	Vertebrate Life	2
BIOL3630	Animal Physiology	3
BIOL3710	Marine Biology	3
BIOL4012	Field and Environmental Biology	2
BIOL4260	Conservation Biology	3
BIOL4220	Environmental Biotechnology	3
BIOL4510	Hong Kong Flora & Vegetation	3
CHEM4400	Advanced Analytical Chemistry	2
CHEM4430	Practices in Testing Laboratory	2
CHEM4280	Chemistry in Biofuel	2
CHEM4440	Food Testing and Environmental Analysis	2
ENER3020	Energy Utilization and Human Behaviour	3
ESSC3200	Atmospheric Science	3
ESSC3300	Introduction to Physical Oceanography	3
ESSC3600	Understanding Our Biosphere	3
ESSC4400	Hydrology	3
GRMD3202	Environmental Management	3
GRMD3203	Urban Environmental Problems	3
GRMD3323	Urban and Regional Planning	3
GRMD4203	Ecosystem Restoration and Management	3
LAWS4310	The Environment and the Laws	3
MBTE2010	Diversity of Life: Applications & Sustainability	3
PHPC2009	Environment and Work	3
PHPC2015	Biostatistics	3
PHPC2017	Epidemiology	3
PHPC3016	Environment and Health	3
STAT3210	Statistical Techniques in Life Sciences	3

Food & Nutritional Sciences

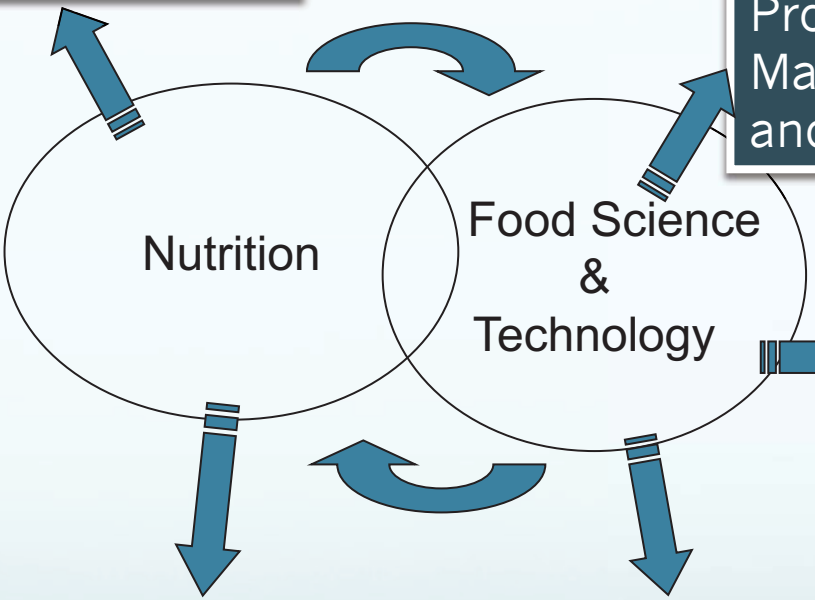
Programme Objectives

1. To equip students with in-depth, up-to-date and practical knowledge in Nutrition, Food Science and Technology
2. To devise and implement strategies independently to solve problems related to food and nutrition in technological contexts
3. To prepare students to further their studies and lifelong learning in food and nutrition

http://www.sls.cuhk.edu.hk/index.php/fnsc

Integration of Food and Nutrition

Nutritional Science ⟷ ***Food Science***



Individual and Family Health

Topics
- Nutrition requirement
- Non-communicable Disease
- Diet Therapy
- Weight Management
- Immunity
- Functional Food
- Traditional Chinese Medicine

Food Processing, Manufacturing and Storage

Topics
- Food characteristics
- Food analysis
- Food spoilage
- Food preservation

Food Quality Control & Safety

Topics
- Food Safety
- HACCP,
- ISO9000, 22000
- Food Legislation
- Quality Management

Community Health

Topics
- Public Health
- Nutrition Education
- Nutrition Policy

Product Development and Production

Topics
- Creation & Development of New Products
- Sensory Evaluation
- Food Biotech: Molecular Biology, Bioprocess Engineering, Microbial Biotechnology

Molecular Biotechnology

Applications in Medicine, Agriculture, Energy, and Environment

http://www.sls.cuhk.edu.hk/index.php/mbte

TIME Magazine U.S.

The Biotech Century

By WALTER ISAACSON Monday, Jan. 11, 1999

Turning Data into Genomic Medicine

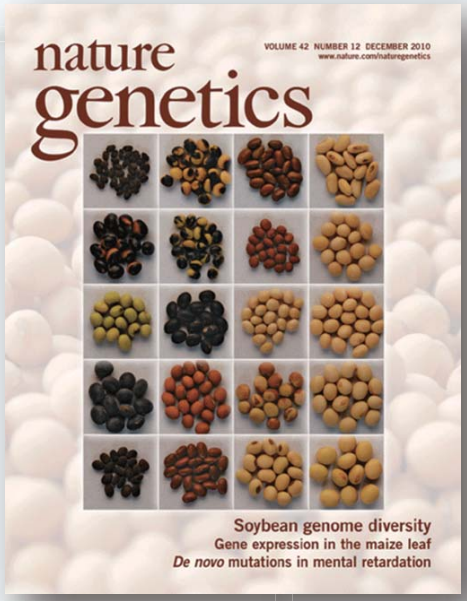
Navigating the Path between the Lab and the Clinic Is Becoming More Straightforward

November 7, 2008

Purple Rain: Tomatoes Get New Color Scheme

Tissue Engineering Revenues Rise

More than half (52%) of the companies comprising the tissue engineering (TE) and stem cell industries are revenue-generating, compared to about 21% four years ago, according to an analysis published in *Tissue Engineering Part B*.



GEN Genetic Engineering & Biotechnology News

Cancer Detection Improved with Noninvasive Testing

Search for Novel Biomarkers Detectable in Accessible Bodily Fluids Proves Promising

Published online 27 January 2010 | *Nature* 463, 409 (2010) | doi:10.1038/463409a

News

Altered microbe makes biofuel

Bacterium could work directly on grass or crop waste.

Jeff Tollefson

In a bid to overcome the drawbacks of existing biofuels, researchers have engineered a bacterium that can convert a form of raw plant biomass directly into clean, road-ready diesel.

So far, biofuels have largely been limited to ethanol, which is harder to transport than petrol and is made

Switch grass could be made into diesel cleanly and quickly. PIXTOCK.COM/ALAMY

Molecular BioTechnology Program

Our missions

High quality education in preparing for R & D in biotechnology

Training in scientific way of knowing and problem solving

MBTE2000 Intro to Molecular Biotech

MBTE2010 Diversity of Life

MBTE3000 Business and Social Aspects of Biotechnology

MBTE4320 Molecular Biotechnology

MBTE4033/4034 Methods in MBT Lab I/II

BIOL2120 Cell biology

BIOL2410 Genetics / BCHE3050 Molecular Biology

BCHE2030 Fundamentals of Biochemistry

MBTE4510 Plant Biotechnology

MBTE4520 Animal Biotechnology

MBTE4530 Microbial Biotechnology

Outside of the classroom experiences and research opportunity in the School

BBSA (Berkeley Biosciences Study Abroad)

DREAM Program

iGEM Competition

Internship Program

SMART Program

USSP (University Sponsorship Program)

B

B

S

A

Berkeley Biosciences Study Abroad (BBSA) Programme 2018-19

University of California, Berkeley (Department of Integrative Biology and Department of Molecular & Cell Biology) AND The Chinese University of Hong Kong, School of Life Sciences

WHAT TO EXPECT IN UC BERKELEY –

- take 12 units of upper level Integrative Biology and Molecular & Cell Biology courses (credits can be transferred back to CUHK to fulfill the graduation requirements);
- gain opportunities in getting internships at the research labs of the 2 departments;
- enrich your studies, broaden your cultural horizons, perfect your academic English and connect with peers from across the globe in one amazing academic experience;

ELIGIBILITY –

- Students (preferably year 2 or above) major in one of the six programmes in School of Life Sciences (BCH, BIO, CMB, ENS, FNS & MBT) with excellent academic standing and proficiency in English
- IETLS >=7.0 ; TOEFL >=90 (attained by summer 2018)

PERIOD OF EXCHANGE

- 1 semester, usually at Term 2

SUBSIDIES –

- A maximum of 5 students will be awarded subsidies for tuition fee in UC Berkeley
  (Students will need to pay for their air-tickets and living expenses during their study in UC Berkeley)

APPLICATION:

1st Round (Initial) Application Deadline : **15 June 2018 (Friday)**

A Briefing will be given on 22 March 2018 (Thu) 11:30 am in L5, Science Centre

Application form and cv should be sent to School of Life Sciences, Room 132, Science Centre or email to lifesciences@cuhk.edu.hk by 15 June 2018 (Fri).

Application form can be downloaded from : www.sls.cuhk.edu.hk

MORE INFORMATION

WEBSITE: http://ib.berkeley.edu/bbsa

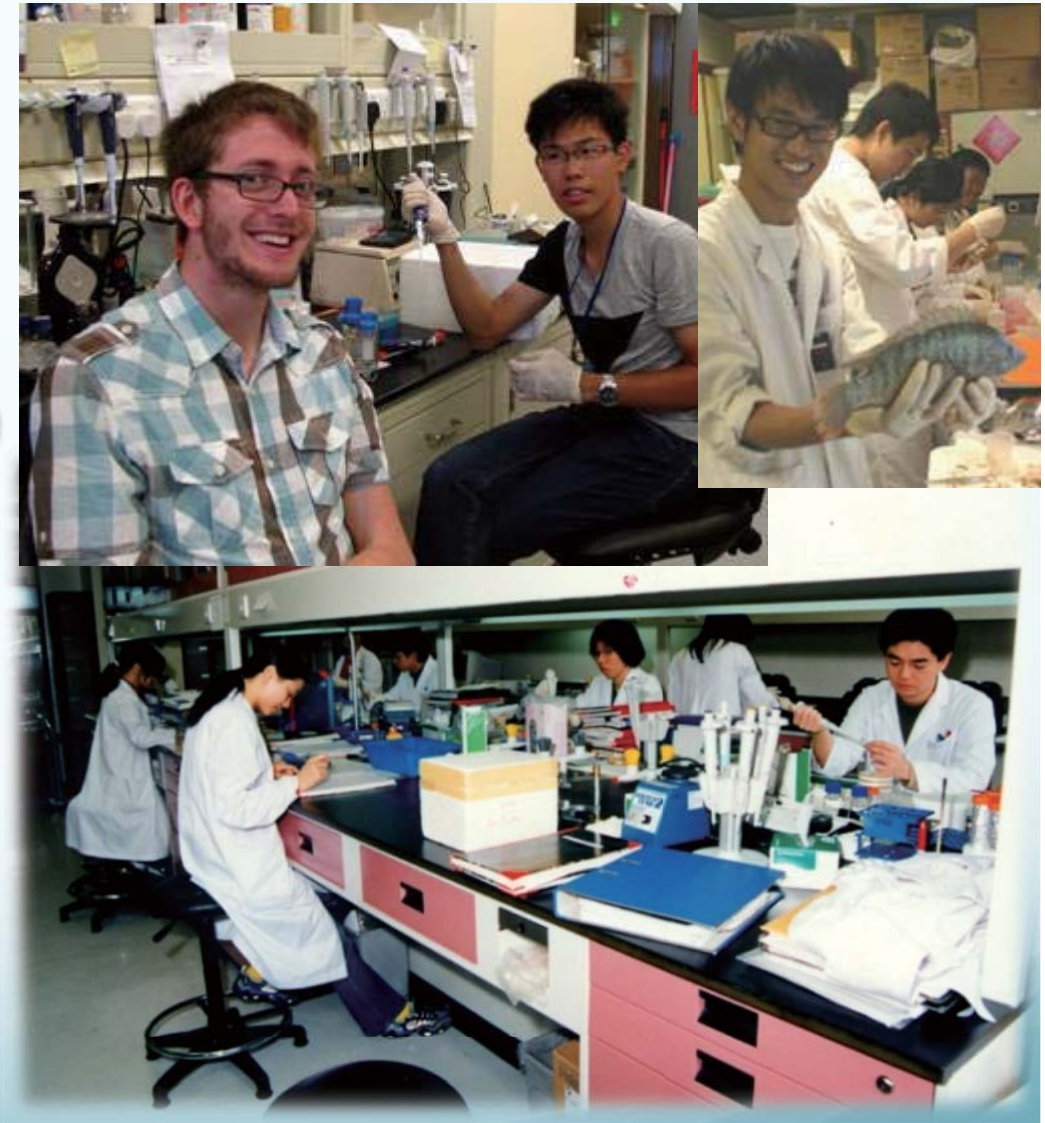
EMAIL: lifesciences@cuhk.edu.hk

CONTACT: Tel: (852)39436793 School of Life Sciences, CUHK

Dedicated Research Exchange And Mentorship

If you are interested in joining the iGEM2019 team of Hong Kong_CUHK, please register to this site by sending us your information first to this site by January 20: https://docs.google.com/forms/d/e/1FAIpQLSfg8c44rNbJ_5ZE4AOgMsgPjR6iTvT5xv-DNh2gT3osKz5HaQ/viewform

Scientist Mentorship And Research Training



Our students have plenty of Internship and Exchange opportunities

Law Offices of Albert Chan, New York

USSP


OPCF Hong Kong
USSP
University Student Sponsorship Programme in Wildlife Conservation 2016-17
© Anson Wong
© Fung Hon Shing
© Howard Chan
© Danielle Tsang & Yolanda Yeung
© Vikki Yu
© Maggie Mak
Ocean Park Conservation Foundation, Hong Kong
University Student Sponsorship Programme in Wildlife Conservation 2016 - 2017
Application now opens till Oct 7!
IF YOU ARE SELECTED AS AN USSPER, YOU WILL BE:
- Joining a research team in one Asian country for 2 weeks and contribute to their conservation work
- Encountering some of the world's most endangered animals
- Creating your own conservation project in Hong Kong
PROJECTS OF THE YEAR
Yangtze finless porpoise
© Chiu Hiu Tung
Chinese crested tern
© Lo Chun Fai
Orangutan
©Leo Lee
Manta ray
©Physalus
Giant panda
© Wyman Koo
Red-crowned roofed turtle
©Chalalendra Singah/ Turtle Survival Alliance
*Different projects will be allocated to different universities. Pictures shown here are for reference only.
Timeline
Sep
Sep 19 - Oct 7 Application period
Sep 24 Info Session 10:00am @ CityU LT5
Oct
Oct 7 Application Deadline
Oct 29 & 30 Interview
Nov
Nov 5 Orientation
Facebook: USSP OPCF
Youtube: OPCFHongKong
**For application details, please consult your own Department in University.
PARTICIPATING SCHOOLS
Hong Kong Baptist University (Department of Biology)
The Chinese University of Hong Kong (School of Life Sciences)
City University of Hong Kong (Department of Biology and Chemistry)
The Education University of Hong Kong (Department of Science and Environmental Studies)
Hong Kong University of Science and Technology (School of Science)
The Open University of Hong Kong (School of Science & Technology)
The University of Hong Kong (The Swire Institute of Marine Science)

Life as a Life Science undergraduate

Active learning

Research Opportunity

Exchange with prominent scientists

Summer Internship

Extracurricular activities organized by Student Organizations and Staff

Good Teacher-Student Relationship

BBQ

Research & Academic Guidance

Sport Games

Winter Camp

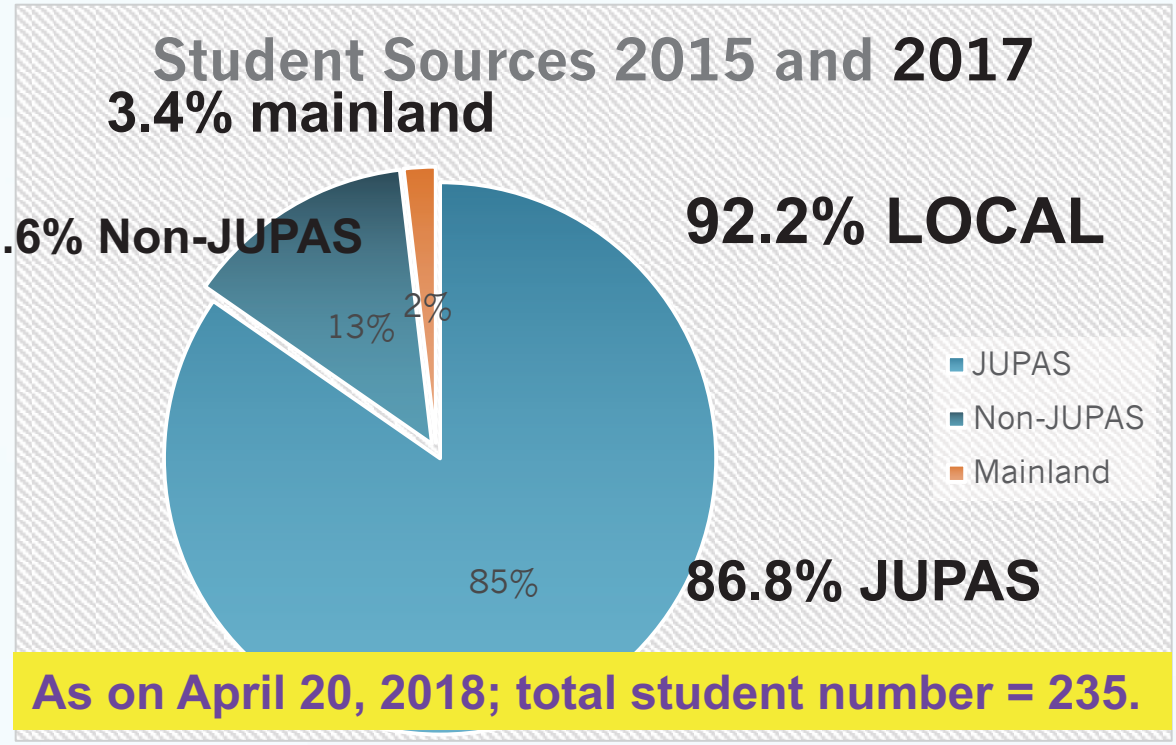
UNDERGRADUATES, 2016-17

Figures as at 24 May 2017

	Year 1	Year 2	Year 3	Year 4 & above	Total
BCHE	9 (63)	54 (3)	54 (1)	54	238
BIOL	4 (22)	29 (3)	33	44	135
CMBI	3 (24)	18 (2)	15	10	72
ENSC	16 (13)	24 (5)	34	22	114
FNSC	22 (84)	60	55	74	295
MBTE	19	17	19	22	77
Total	279	215	211	226	931

( ) potential major

Declare majors and potential majors in May, 2017



As on April 20, 2018; total student number = 235.

2017-18	JUPAS	non-JUPAS	Mainland JEE	Local	non-Local
BCHE	62	7	1	67	2
BIOL	36	3	0	37	2
CMBI	13	6	4	13	6
ENSC	11	3	0	14	0
FNSC	69	5	3	73	9
MBTE	13	1	0	13	1
Total	204	25	8	217	18


Thank You for Your Attention
Q & A