



TOWN HALL MEETING Make BME Great Together

http://www.bme.cuhk.edu.hk

f CUHK Biomedical Engineering

OBMEDEPT

Prof. Raymond Tong

Chairman



Agenda

- New BME Core Faculty Member
- 2. BME Department's New General Office and Computer Lab
- 3. Programme Outcome & HKIE Required Outcomes
- 4. Elective Course Offering in 2020-21
- 5. Policy of Course Cancellation due to Low Enrollment Rate
- 6. Change of Curriculum
- 7. Graduate Employment Survey
- 8. Feedbacks from Students about Online Teaching
- 9. Student Ambassadors Scheme
- 10. Biomedical Engineering Outstanding Achievement Scholarships
- 11. BME Society

1. New BME Core Faculty Member

Prof. GAO Zhaoli

Assistant Professor

Tel: +852 3943 0496

Email: zlgao@cuhk.edu.hk

Office: ERB 1113



Assistant Professor

Tel: +852 3943 0495

Email: wyuan@cuhk.edu.hk

Office: ERB 1119

Dr. LOU Wutao

Lecturer

Tel: +852 3943 0458

Email: wlou@cuhk.edu.hk

Office: ERB 1110









2. BME Department's New General Office ERB1120

Office Hours

Monday – Thursday 8:45am – 1:00pm

2:00pm - 5:30pm

Friday 8:45am – 1:00pm

2:00pm - 5:45pm

Saturday, Sunday & Public Holiday

Closed



2. BME Department's New Computer Lab ERB1122

- 24-hour opened for BME students ONLY
- Please use your CU Link Card to access the computer lab (use main door ONLY)
- Please use O365 account to login the computer
- Please DO NOT attempt to repair any computer or change the settings.
 Report all problems related to the system/software/computer to our technician Nelson (email: ptso@cuhk.edu.hk; tel: 3943 8291)
- Please follow all the "Rules and Regulation" posted on the whiteboard of the computer lab

** Due to COVID-19 pandemic, the computer lab is temporarily MOT opened to students until further notice **

2. BME Department's New Computer Lab ERB1122

- Printing service is provided for BME students:
 - 1. HK\$0.2 per sheet with white/black printing (A4)
 - 2. HK\$2 per sheet with color printing (A4)
 - 3. \$40 free quota per year per student, maximum accumulate to \$80 for each student.



3. Programme Outcome & HKIE Required Outcomes (1)

Program	Programme Outcome				
PO 1	an ability to master the required knowledge of mathematics, science, and engineering and apply them appropriately to the BME discipline in general and/or to a specialized BME area				
PO 2	an ability to design and conduct experiments, collect data on humans and other biological specimens, and to analyze and interpret data to address health-related issues				
PO 3	an ability to design a system, component or process to meet desired needs within realistic constraints, and to develop innovative technologies to serve the healthcare needs of society				
PO 4	an ability to identify, formulate and solve engineering problems critically				
PO 5	an ability to use the techniques, skills, and modern engineering tools necessary for BME practice				
PO 6	an ability to use the computer/IT tools relevant to the BME discipline along with an understanding of their processes and limitations				
PO 7	an ability to communicate effectively				
PO 8	an ability to demonstrate leadership, to manage projects, and to function on multi-disciplinary teams				
PO 9	an ability to understand professional and ethical responsibility, and the impact of engineering solutions in a global and social context, especially the importance of health, safety and environmental considerations to both workers and the general public				
PO 10	a readiness to engage in lifelong learning to stay abreast of contemporary issues, and a capacity to acquire new knowledge and skills across disciplinary boundaries				

3. Programme Outcome & HKIE Required Outcomes (2)

Matching between the Programme Outcomes and the HKIE Required Outcomes

HKIE's Graduate Attributes	BME Programme Outcomes
a) an ability to apply knowledge of mathematics, science, and engineering appropriate to the degree discipline	PO1
b) an ability to design and conduct experiments as well as to analyze and interpret data	PO2
c) an ability to design a system, component or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health & safety, manufacturability & sustainability	PO3
d) an ability to function on multi-disciplinary teams	PO8
e) an ability to identify, formulate and solve engineering problems	PO4
f) an ability to understand professional and ethical responsibility	PO9
g) an ability to communicate effectively	PO7
h) an ability to understand the impact of engineering solutions in a global and social context, especially the importance of health, safety and environmental considerations to both workers and the general public	PO9
i) an ability to stay abreast of contemporary issues	PO10
j) an ability to recognize the need for, and to engage in lifelong learning	PO10
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice appropriate to the degree discipline	PO5
l) an ability to use the computer/IT tools relevant to the discipline along with an understanding of their processes and limitations	PO6

3. Programme Outcome & HKIE Required Outcomes (3)

Matching between the Programme Outcomes and the HKIE Required Outcomes

Example:

Programme Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
	Apply knowledge of math, science & engineering to BME	Experiment on humans & biological specimens, analyze & interpret data	Innovate a system, part or process to meet desired needs within constraints	Identify, formulate, & solve engineering problems critically	Use techniques, skills, & modern engineering tools for BME practice	Use IT tools relevant to BME with an understanding of their limitation	Communicate effectively	Lead, manage projects, & function on multi-disciplinary teams	Understand ethics, global, societal & professional responsibilities	Learn new knowledge & skills across disciplines & continuously
HKIE Graduate Attributes	А	В	С	E	K	L	G	D	F, H	l,J
REQUIRED COURSES										
BMEG2001 Intro to BME	√	✓	√	✓	✓					
BMEG2011 BME Lab & Hospital Experience	✓	✓	✓	✓	✓	✓	✓	✓		

THREE BME Streams

(1) Medical Instrumentation and Biosensors

- For Cohort 2016-17 and thereafter, at least 12 units chosen from the following courses
- BMEG4998 and 4999 in an approved topic relevant to the Stream

Elective Courses

- BMEG3130 Tele-Medicine and Mobile Healthcare
- BMEG3210/ESTR3212 Biofluids
- BMEG3330/ESTR3602 Neuroengineering
- BMEG3420 Medical Robotics
- BMEG3440 Global Engineering Medical Innovation[#]
- BMEG4220 Body Sensor Networks
- BMEG4330/ESTR4201 Advanced Imaging and Spectroscopy Techniques in Biomedicine
- BMEG4410/ESTR4203 BioMEMS
- BMEG4450/ESTR4202 Bionanotechnology
- BMEG4520 Cardiovascular Engineering
- BMEG4540 Electrophysiology
- ELEG3201/ESTR3200 Microelectronic Devices and Circuits
- ENGG2120 Introduction to Digital and Microprocessor Systems
- CSCI courses

10

^{*} New Course

THREE BME Streams

(2) Biomedical Imaging, Informatics and Modeling

- For Cohort 2016-17 and thereafter, at least 12 units chosen from the following courses
- BMEG4998 and 4999 in an approved topic relevant to the Stream

Elective Courses

- BMEG3102 Bioinformatics
- BMEG3103 Big Data in HealthCare[#]
- BMEG3105 Data Analytics for Personalized Genomics and Precision Medicine[#]
- BMEG3120 Database and Security for Biomedical Engineering
- BMEG3440 Global Engineering Medical Innovation[#]
- BMEG4103 Biomedical Modelling
- BMEG4320/ESTR4200 Biomedical Imaging Applications
- BMEG4330/ESTR4201 Advanced Imaging and Spectroscopy Techniques in Biomedicine
- CSCI courses

^{*} New Course

THREE BME Streams

(3) Molecular, Cell and Tissue Engineering

- For Cohort 2016-17 and thereafter, at least 12 units chosen from the following courses
- BMEG4998 and 4999 in an approved topic relevant to the Stream

Elective Courses

- BIOL2120 Cell Biology
- BMEG3140 Molecular and Cellular Engineering Laboratory[#]
- BMEG3210/ESTR3212 Biofluids
- BMEG3440 Global Engineering Medical Innovation[#]
- BMEG4410/ ESTR4203 BioMEMS
- BMEG4520 Cardiovascular Engineering
- BMEG4450/ESTR4202 Bionanotechnology
- BMEG4510/ESTR4204 Biomolecular Engineering
- BMEG4530/ESTR4214 Musculoskeletal Tissue Engineering
- MBTE4320 Genetic Engineering
- CSCI courses

12

^{*}New Course

Stream Declaration for BME Final Year Graduating Students

i.e. Students who are expected to be graduated in 2019-20 Term 2



Stream Declaration Form: https://forms.gle/jKB9kCRFJCBTfJPy8

** Certified Letter for BME Stream will be issued to students who have fulfilled the course requirement of stream of their admission year

For students who still want to declare your stream, please complete the online form by 8 July 2020 (Wednesday)

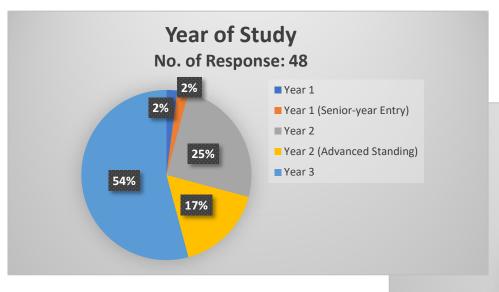
2 Surveys:

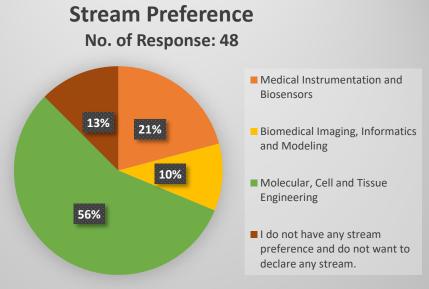
Survey on Preference of Stream & BMEG Elective Courses in 2020-21 (48 respondents)

Survey on Preference of NEW BMEG Elective Courses in 2020-21 (48 respondents)

Report on Survey Results

48 students responded to the above two surveys





*Some elective courses will be offered in alternate years.

Course Code	Course Title	Unit(s)	2017-18	2018-19	2019-20	2020-21
BMEG3102	Bioinformatics	3	Term 2	Term 2	Term 2	Term 2
BMEG3103	Big Data in HealthCare	3	-	-	-	Х
BMEG3105	Data Analytics for Personalized Genomics and Precision Medicine	3	-	-	-	Х
BMEG3130	Tele-Medicine and Mobile Healthcare	3	Χ	Term 1	Χ	Term 1
BMEG3140 [#]	Molecular and Cellular Engineering Laboratory	3	-	-	-	Term 2
BMEG3210/ESTR3212	Biofluids	3	X	Term 2	X	X
BMEG3330/ESTR3602	Neuroengineering	3	Term 2	Term 2	X	Term 2
BMEG3420/ESTR4200	Medical Robotics	3	Term 2	Term 2	X	Х
BMEG3440 [#]	Global Engineering Medical Innovation	3	-	-	-	Term 2
BMEG3910	Undergraduate Research in Biomedical Engineering	3	Term 1/2	Term 1/2	Term 1/2	Term 1/2
BMEG4103	Biomedical Modelling	3	Term 1	Х	X	Х
BMEG4320	Biomedical Imaging Applications	3	X	X	X	Term 1
BMEG4330/ESTR4201	Advanced Imaging and Spectroscopy Techniques in Biomedicine	3	X	Term 2	Term 1	Х
BMEG4410/ESTR4203	BioMEMS	3	Term 1	Term 2	Term 2	Х
BMEG4450/ESTR4202	Bionanotechnology	3	Term 2	Term 2	Term 2	Х
BMEG4510/ESTR4204	Biomolecular Engineering	3	Term 1	Term 1	Х	Term 1
BMEG4520	Cardiovascular Engineering	3	Х	Х	Term 1	Term 2
BMEG4530/ESTR4214	Musculoskeletal Tissue Engineering	3	Term 2	Term 2	Term 2	Term 2

*New Course

BMEG3140 Molecular and Cellular Engineering Laboratory

- New Elective Course
- New Elective Course in Molecular, Cell and Tissue Engineering (MCTE) Stream
- Course Offering: 2020-21 Term 2

Course Description:

What you will obtain from this new course:	Course Content
 Basic cell biology, molecular biology and biomedical engineering Hands-on experience in wet labs Get prepared for competitions, such as iGEM Get prepared for Final Year Projects (FYP) in wet labs Including research labs led by Prof. Liming BIAN, Sebastian BEYER, Jonathan CHOI, Liting DUAN, Megan HO 	 Biological and cellular laboratory safety and bioethics Basic molecular cloning skills Restriction enzyme cutting, ligation, and E Coli transformation Mammalian cell culture techniques Cell culture maintenance, observation of cell growth and proliferation, analysis of cell death, genetic modification, cell staining

MEG3440 Global Engineering Medical Innovation

- New Elective Course
- New Elective Course in all of the three streams: Medical Instrumentation and Biosensors (MIB), Biomedical Imaging, Informatics and Modeling (BIIM), Molecular, Cell and Tissue Engineering (MCTE)
- Course Offering: 2020-21 Term 2

Course Description:

This new course is designed to better equip students with those skills. It involves projects that are led by students and aims at accelerating them to prepare for engineering medical innovation in which teams of students design and develop clinically-driven and client-centered engineering innovations for the future of medicine & healthcare. This course aims at enabling students to master design-thinking and, by following a problem-based group approach, apply it to the broad medical fields. Students have to form groups of size 2 to 4 to develop from an idea to become viable medical device in the market. In the process, students work on ideas, market research, prototyping, developing operation strategies, conducting pilot tests, designing market survey and preparing business proposal to sell their product or ideas. Upon completing this course, students should have acquired engineering design skills and entrepreneurship skills that are directly transferable to further innovation work.

5. Policy of Course Cancellation Due to Low Enrollment Rate

- Minimum enrollment no. for elective courses: 12
- Elective courses may be cancelled if the enrollment no. is <u>BELOW 12</u> after the course registration period of the semester
- General Office will inform students who registered the course will be cancelled and provide assistance to students for course registration

6. Change of Curriculum

REMINDER!!

Course Substitution for ENGG1100, ENGG1410, ENGG2420 & ENGG2450

Course	Course to be taken for course substitution to fulfill the major requirement
ENGG1100 Introduction to Engineering Design - NOT offered effective from 2019-20	MAEG1020 Computational Design and Fabrication OR ELEG2700 Introduction to Electronic System Design The course offering term will be proposed by the course offering department.
ENGG1410 Linear Algebra and Vector Calculus for Engineers - NOT offered effective from 2019-20	ENGG1120 Linear Algebra for Engineers OR ENGG1130 Multivariable Calculus for Engineers The course offering term will be proposed by the course offering department.
ENGG2420 Complex Analysis and Differential Equations for Engineers - NOT offered effective from 2020-21	BMEG2410 Complex Analysis and Differential Equations The course will be offered in 2020-21 Term 1.
ENGG2450 Probability and Statistics for Engineers Engineers - NOT offered effective from 2020-21	STAT3210 Statistical Techniques in Life Sciences The course will be offered in 2020-21 Term 2.

6. Change of Curriculum

Curriculum Changes in 2020-21 & 2021-22

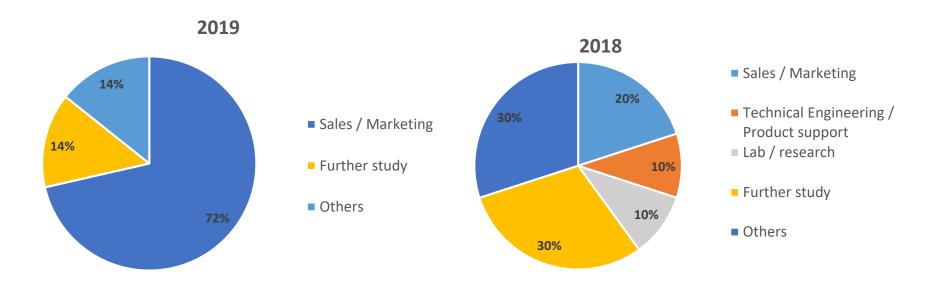
Course	Actions Taken in 2020-21	Curriculum Changes	Course Substitution
BMEG2011 Biomedical Engineering Laboratory and Hospital Experience – will be offered for the LAST time in 2020-21 Term 2	For students admitted in 2019-20 and students who need to take/retake BMEG2011 for fulfilling major required course requirements: • BMEG2011 will be preassigned in 2020-21 Term 2 • Summer Practical Training will be held in Summer 2021 • The grade of BMEG2011 will be released after completion of the summer practical training	Curriculum Changes effective from 2021-22 BMEG2012 Biomedical Engineering Laboratory (2 units) BMEG2602 Hospital Experience and Engineering Practicum (1 unit)# *** BMEG2602 will be first opened in Summer 2021 (for BME students who are newly admitted in 2020-21)	*** For those who cannot complete BMEG2011 but pass the Summer Practical Training by the academic year of 2020-21, they will need to take BMEG2012 for the course substitution. *** For those who have completed BMEG 2011 without the Summer Practical Training by the summer 2021, they will need to take Summer Practical Training in the following year. The grade of BMEG2011 may be affected.

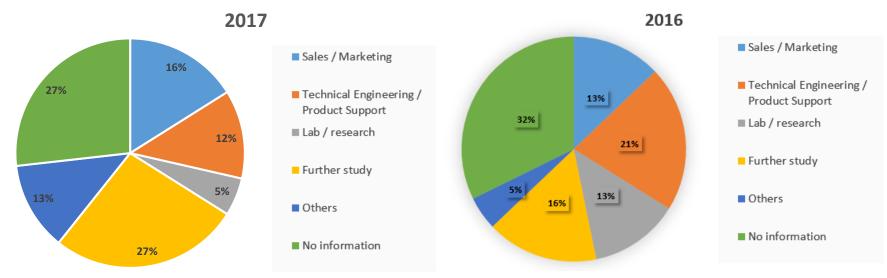
6. Change of Curriculum

Curriculum Changes in 2020-21 & 2021-22

Course	Curriculum Changes	Course Substitution
BMEG3101 Medical Instrumentation and Design (3 units) – will be offered for the LAST time in 2021-22 Term 2	Curriculum Changes effective from 2022-23 BMEG3111 Medical Instrumentation and Design (2 units)	*** For those who cannot complete BMEG3101 by the academic year of 2021-22, they will need to take BMEG3111 (2-unit) and take one more course with at least 1-unit for the course substitution.

7. Graduate Employment Survey







 Doubtful about communication effectiveness and teaching quality

"During online lecture, teachers are hard to address questions from student immediately (Some professors who are not familiar with the chat function will tend to ignore the questions). Even when they start to answer the question, the use of mouse writing function makes the text explanation very messy and unreadable, and when students are referring to certain part of the powerpoint, it is hard for both professors and students to locate the part clearly. After addressing the first few questions, there are usually follow-up questions from students, but they can hardly be addressed as it is hard to trace back on the original question accordingly."

"cannot address the problem that no practical experiments can be conducted"

"too limited course time so some contents are not covered thoroughly"



 Doubtful about communication effectiveness and teaching quality (Cont'd)

"There is no good feature in this class under such arrangement. The class delivered through internet is very confusing sometime as the professor is not speaking clearly. Also, the PowerPoint is so unclear and we cannot physically ask question to clarify our confusion (asking through internet, be it typing or speaking, is not an appropriate way as the message cannot be will delivered or received."

"It is sometimes difficult to recognize the hand writing from professor"

"The originally vague requirements of the final project, due to the postponed schedule of online teaching, has time to be clarified and modified."



Difficulties in doing lab work assessments

"for some lab work based course (BMEG2011), the new arrangement is confusing and frustrating at some point. I understand that it is extremely hard for lab course to make adjustment on properly assessing students through internet and without any physical laboratory tool. The current arrangement requires us to do a signal-circuit project by ourselves with the help from lecture and tutorial video. Although it is assumed that we can do it and submit it on time, the fact is that it is hard for us to visualise the theory explained during lecture on the final project without extra help from TAs or from discussion with group mate. The final assessment format is to record a video through zoom meeting to test for its efficiency (count for the time required to prepare the heat block), and given the unexpected internet problem, it is much more stressful to maintain a high level performance."



Lack of after-lecture Support

"Usually after class, students will ask professor for clarification on some part or for some additional exercise and reference book for consolidation, but there is a time limit on online lecture... professors tend to give out some big concept and theory without explaining the mechanism or usage of it. This becomes very frustrating for me some of my BME friends as we basically have to memorise most of the content, and without a direct way to ask for help, the learning motivation in general has decreased compared to last term..."



 Difficulties from students who are staying in countries with a largely different timezone

"some non locals students are attending the zoom lectures in a different time zone, although luckily most of them do not have a large time difference, some are forced to change their lifestyle to suit the timetable for the class. Some professors will record the lectures for students to review, but some ignore the process, and it is hard for students who have difficulty accessing the lecture on time to review the content..."

Unstable internet connection

"Most of the times the internet connection is lagging and I miss most of the live online lectures which is very much disturbing and confusing."



Assessment & Grading arrangement

"I am strongly dissatisfied with the assessment and grading methods. Online invigilation cannot avoid some students communicate with others or search relevant information on the internet. Therefore, there is still a possibility of cheating."

"under this online arrangement, I believe it is necessary to provide pass/fail option for students. The lectures are often disturbed by lagging and internet factor, and the questions from students can rarely be properly addressed as it is hard to directly refer the confusion part on the slide and it is hard for the professor to clearly explain the concept through lagging, discontinuous tone with poor mouse writing."



Flexibility of online learning

"The originally unreasonable assumption of students being familiar with Arduino, is now finally become the true fact.

Thanks to the online teaching, so we can get the equipment's and Arduino board home to help us verified our knowledge learnt from the Internet, with the great teaching from the online course and the important assistance from the Arduino board, we can learn how to write a code for Arduino by ourselves."

"lecture can be replayed, which is good for revision"

"The open book exam is good as we can really learn how to use the things"

"Flexible lecture time"

"students can ask questions anytime in the chatbox"

"students became willing to ask questions and answer questions. so I think online learning system is actually encouraging students to take participants during lessons"

9. BME Student Ambassadors

2019-20

Name	Admission Channel	Year of Study	Gender	Contact
LAM Nga Mei May	JUPAS	Year 3	Female	1155109727@link.cuhk.edu.hk
LAU Yolanda Fong Yung	Non-JUPAS Local	Year 2	Female	1155113627@link.cuhk.edu.hk
LEUNG Chi Kit Boris	Non-JUPAS Local	Year 2	Male	1155124628@link.cuhk.edu.hk
LI Xuanxuan	Non-JUPAS International	Year 2	Female	1155123725@link.cuhk.edu.hk







9. BME Student Ambassadors

http://www.bme.cuhk.edu.hk/new/studentambassadors.php

- nurture peer connections between junior and senior students
- helps new students explore CUHK's learning environment
- develop social network through sharing and interactions with BME buddies

Eligible Applicants

Year 2 or above undergraduate students who are:

- Enthusiastic about serving BME
- Creative, cheerful and confident
- Sincere to share and patient to listen

Apply Now! **Online Application Form**

Application Deadline: 31 July 2020 (Friday)

10. Biomedical Engineering Outstanding Achievement Scholarships

Number of Award

EIGHT awards of \$10,000 each

Eligibility and Award Criteria

- √ Year 1 to Year 4 or above BME undergraduate students (TWO awards for each year)
- ✓ Year GPA of 3.0 or above in the previous year of study
- ✓ Participated in co-curricular and/or extra-curricular activities:
 - (i) Awards, especially those related to BME discipline
 - (ii) Community Service, e.g. contributions to BME Department and/or Profession
 - (iii) Other achievement, e.g. sports, competitions, voluntary work
- √ Financial needs



10. Biomedical Engineering **Outstanding Achievement Scholarships**



Please submit the following documents to the BME General Office by hand or by email:

Completed Application Form

Copy of the Academic Transcript (unofficial transcript generated in CUSIS)

Copy of the Awards / Activities Participation Certificates

Application Deadline: by 5:00pm, 17 July 2020 (Friday)

** Late or Incomplete application will NOT be considered

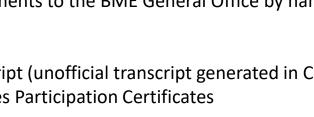
Enquiries

BME General Office

Address: Room 1120, 11/F, William M.W. Mong Engineering Building

Tel: 3943 1935

Email: bmeinfo@cuhk.edu.hk



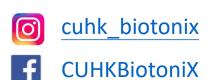
11. BME Society

Biotonix 醫若曌 – 10th Biomedical Engineering Society

Member		Position
NIP, Yung Lok (Jason)	聶榕樂	President
WONG, Hoi Lam (Kaka)	黃凱琳	Vice President
CHEUNG, Yee Ping (Casey	, 張以平	External Vice President
LI, Szehon (Anson)	李思翰	Financial Secretary
SZE, Hoi Kuen (Patrick)	施海權	Secretary & United College Representative
LEE, Wing Yin (Pandora)	李穎妍	Chung Chi College Representative & Promotion and Publication Officer
CHAN, Yat Hei (Thomas)	陳日曦	Shaw College Representative & Promotion and Publication Officer
CHANG, Hongyi	常弘毅	New College Representative & Recreation & Sports Officer









m.me/CUHKBiotoniX



12. BME Activities



What other activities you are interested to join (in July / August) if we make it **ONLINE**?



Welcome your suggestions!

https://forms.gle/wu2ZhSwKe2EcNQX77