

### BEng (Hons) in Biomedical Engineering

### **Academic Counselling 2023**

#### 15 August 2023

Prof. Aaron Ho Professor and Chairman Department of Biomedical Engineering

http://www.bme.cuhk.edu.hk/new/files/under graduatestd/AcademicCounselling2023.pdf



BME Website => Students => Undergraduate Students => Academic Counselling => AUG 2023



### Biomedical Engineering ranks global TOP 13 in 2022 subject ranking of Academic Ranking of World Universities (ARWU)



Year	2017	2018	2019	2020	2021	2022
Global	101-	101-150	51-75	33	18	13
ranking	150					
Hong Kong	3	3	2	2	1	1
ranking						

https://www.shanghairanking.com/rankings/gras/2022/RS0208

中大9學科打入全球排名50強 4科為 全港之最



【on.cc東網 21/7/2022】 香港中文大學在2022年軟科世界一流 學科排名中,有9個學科打入全球50強 今年中大最高排名的學科為生物醫學 工程,於全球排列第13位,較去年上 升5位之餘,亦是全港排名首位。

https://hk.on.cc/hk/bkn/cnt/news/20220721/bk n-20220721201742324-0721\_00822\_001.html

### **Biomedical Engineering (BME) CUHK-BME's Motto** Medicine Biology **EXPLORE** 探索 **Biomedical** Engineering **CARE** 關懷 **INNOVATE** 創新 Engineering

 An interdisciplinary division offered by the Faculty of Engineering in close collaboration with the Faculty of Medicine

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- Both basic and applied research
- Wide access to courses offered by different divisions
- Tailor-made learning programmes
- Individualized PhD candidacy examination

# **Academic Advisors in BME**



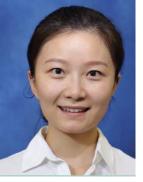
Prof. Aaron HO Professor & Chairman



Prof. Charles CHANG **Assistant Professor** 



Prof. Jonathan CHOI Associate Professor



Prof. Liting DUAN **Assistant Professor** 



Prof. Zhaoli GAO Assistant Professor



Prof. Megan HO Associate Professor



Prof. Alan LI Assistant Professor



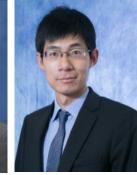
Prof. Martin MAK Associate Professor



Prof. Raymond TONG Professor



Prof. Scott YUAN Assistant Professor



Prof. Renjie ZHOU Associate Professor

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Dr. Wutao LOU Lecturer



### **BME Student Ambassadors 2023-24**

Name	Admission Channel	Year of Study	Gender	Contact
SIU Man Hei Connie	JUPAS	Year 4	F	1155142488@link.cuhk.edu.hk
WANG Shih-Yu Yolanda	International	Year 4	F	1155156744@link.cuhk.edu.hk
WONG Chee Ching CC	Non-JUPAS Local	Year 4	F	1155155836@link.cuhk.edu.hk
CHANTAWANNAKUL Jarinyagon	International	Year 3	F	1155161428@link.cuhk.edu.hk
KANNAPPAN Kannammai	Non-JUPAS Local	Year 3	F	1155163190@link.cuhk.edu.hk
HUQ Mohammad Tahmid Ul	International	Year 3	М	1155165056@link.cuhk.edu.hk
LEUNG Chung Ki Ricky	JUPAS	Year 3	М	1155175455@link.cuhk.edu.hk
LEE Tsz Yeung	JUPAS	Year 2	М	<u>1155193424@link.cuhk.edu.hk</u>
LI Wai Kwan Tommy	JUPAS	Year 2	М	<u>1155194369@link.cuhk.edu.hk</u>
Michelle LEE	International	Year 2	F	1155179462@link.cuhk.edu.hk



CC

Jarinyagon Kannammai

Tahmid

Ricky 7

Tsz Yeung Tommy

Michelle

### How to get Study Pattern?

- Access BME website <u>http://www.bme.cuhk.edu.hk/</u>
- Click "Students" > "Undergraduate Students"
   Study Scheme > Your Admission Year

### STUDY SCHEME

YEAR 2023-2024	Applicable to students admitted in 2023-24 - <u>download link</u>
YEAR 2022-2023	Applicable to students admitted in 2022-23 - <u>download link</u>
YEAR 2021-2022	Applicable to students admitted in 2021-22 - <u>download link</u>
YEAR 2020-2021	Applicable to students admitted in 2020-21 - <u>download link</u>

			ID:	*
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Student (	Cente	r		
cademics				
Class Schedule	B	eadlines 🛛 😡 U	JRL 📴 Gradebook	
oping Cart Nanner	This	Week's Schedule		Enrollment Dates
		Class	Schedule	Open Enrollment Dates
er academic 🗸 📎	3	BMEG 2001 LEC (4896)	Mo 1:30PM - 2:15PM Y.C. Liang Hall 103	
	3	BMEG 2210 LEC (7344)	We 10:30AM - 11:15AM Institute of Chin Studies L1 Tu 4:30PM - 6:15PM William M W Mong Eng Bldg 407	
	B	BMEG 2210T01 TUT (7377)	We 11:30AM - 12:15PM Institute of Chin Studies L1	
	B	CHEM 1380-B LEC (7507)	Tu 1:30PM - 2:15PM Science Centre L1 Th 3:30PM - 5:15PM Science Centre L1	who is your academic advisor (will be ready
	3	CHEM 1380-BT01 TUT (7508)	Tu 2:30PM - 3:15PM Science Centre L1	in early September)

You are advised to meet your Academic Advisor at least once per semester!

Should you have any doubts or need any academic guidance before the semester starts, please feel free to contact us at (+852) 3943 1935 or bmeinfo@cuhk.edu.hk

# **BME Curriculum Structure**

University Core Requirements#				
	<u>Units</u>			
Chinese Language	5			
English Language	8			
University GE	7			
College GE	6			
Foundation GE Courses	6			
Understanding China	1			
Hong Kong in the Wider Constitutional Order	1			
IT	3			
PE	2			
Total:	39			

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	<u>Units</u>
Faculty Package	9
Foundation Courses	12
Major Required Courses	33
Research Component Courses	6
Major Elective Courses	15
Total:	75

Free Electives: 9

Minimum Units for Graduation: 123

# For details of University Core, please visit: <u>http://www.res.cuhk.edu.hk/en-gb/undergraduate-</u> students/information-for-year-1-students/information-on-university-core-requirements-and-exemption

Student Handbook: <a href="http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx">http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx</a>

# Recommended Study Pattern: Year 1

	Units	Pre-assigned
<ul> <li>Year 1 - Term 1</li> <li>BMEG2001 Introduction to Biomedical Engineering</li> <li>CHEM1280 Intro to Org Chm &amp; Biomolecule/ CHEM1380 Basic Chemistry for Engineers/ LSCI1001 Basic Concepts in Biological Sciences/ LSCI1003 Life Sciences for Engineers</li> <li>MATH1510 Calculus for Engineers</li> <li>PHYS1110 Engineering Physics: Mechanics and Thermodynamics</li> </ul>	1 0-3 3 3	✓ ✓ ✓
<ul> <li>SBMS1431 Human Anatomy and Physiology I</li> </ul>	2	$\checkmark$
<ul> <li>Year 1 - Term 2</li> <li>ENGG1120 Linear Algebra for Engineers</li> <li>ENGG1130 Multivariable Calculus for Engineers</li> <li>CHEM1280 /CHEM1380 /LSCI1001 /LSCI1003 (if not taken in Term 1 and depends on the course offering term)</li> <li>SBMS1432 Human Anatomy and Physiology II</li> </ul>	3 3 0-3 2	√ √ √
<ul> <li>Year 1 - Summer (4 weeks)</li> <li>BMEG2602 Hospital Experience and Engineering Practicum (Summer Practical Training) (*please reserve your time &amp; take it in year-1 summer!!!)</li> </ul>	1	$\checkmark$

For Year 1 students, all required courses will be pre-assigned to you except CHEM & LSCI courses (unless there is time clash due to re-take of foundation courses)

### **BME Practical Training**

#### BMEG2602 Hospital Experience and **Engineering Practicum** (Year 1 Summer)

- Four-week professional and practical summer training on CUHK main campus and at Prince of Wales Hospital (PWH) and CUHK Medical Centre (CUMC) for Year 1 students
- In-house Training involves:
- Electronic Circuit Design, Simulation, Fabrication, Interfacing with Software, Data Acquisition, and Wireless Communication etc.
- Hospital Training involves:
- Daily operation, information  $\geq$ flow and logistics in the clinic
- $\geq$ Fundamentals and basic operation of medical instruments



# Recommended Study Pattern: Year 2

	Units	Pre-assigned
<ul> <li>Year 2 - Term 1</li> <li>ENGG1110 Problem Solving By Programming</li> <li>BMEG2210 Orthopaedic Biomechanics and Musculoskeletal Injury</li> <li>BMEG2410 Complex Analysis and Differential Equations</li> </ul>	3 3 3	$\checkmark \\ \checkmark \\ \checkmark$
<ul> <li>Year 2 - Term 2</li> <li>BMEG2012 Biomedical Engineering Laboratory</li> <li>BMEG2300 Circuits and Signals for Biomedical Engineering</li> <li>ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics</li> <li>SBMS1440 Cell and Molecular Biology in Biomedical Engineering</li> <li>STAT3210 Statistical Techniques in Life Sciences</li> </ul>	2 3 3 2 3	$\checkmark$

For Year 2 students, all required courses will be pre-assigned to you (unless there is time clash due to re-take of foundation courses)

# Recommended Study Pattern: Year 3-4

	Units	Pre-assigned
Year 3 - Term 1 Major required: (1) BMEG3430 Biomaterials and Tissue Engineering (2) BMEG3111 Medical Instrumentation and Design	8	
(3) BMEG3320 Biomedical Imaging Major Elective: 1 course	3	
Year 3 - Term 2 Major required: BMEG4010 Global Medical Device Regulatory Affairs Major Elective: 2 courses	3 6	
Year 4: Work-Study for students who want to receive industrial training Note: Students who have completed a structured training programme are qualify for consideration of ENGG1820 Engineering Internship (1 unit)		
<u>Year 4 - Term 1 (or Year 5 for workstudy)</u> Major required: BMEG4998 Final Year Project I Major Elective: 1 course	3 3	$\checkmark$
<u>Year 4 - Term 2</u> Major required: BMEG4999 Final Year Project II Major Elective: 1 course	3 3	$\checkmark$

Please discuss with your Academic Advisor if necessary

### Stream Specialization

Students may choose not to specialize in any stream or <u>to specialize in one of the</u> <u>three streams and complete a minimum of 12 units of courses</u>, at most one elective at 2000 or below level, **plus BMEG4998 and 4999[e]**, **prescribed by the stream** 

Medical Instrumentation & Biosensors (A	<u>AIB)</u>			
BMEG 3103 Big Data in HealthCare	BMEG3130 TeleMedicine & Mobile Healthcare	BMEG3210 Biofluids	CSCI course(s) * Students are allowed to take a maximum of 3 units of CSCI course(s) at 1000 or above level	
BMEG3330 Neuroengineering	BMEG3420 Medical Robotics	BMEG3440 Global Engineering Medical Innovation		
BMEG4220 Wearable Biomedical Devices and IoT in Healthcare	BMEG4330 Advanced Imaging and Spectroscopy Techniques in Biomedicine	BMEG4410 BioMEMS		
BMEG4450- Bionanotechnology	BMEG4520 Cardiovascular Engineering	ELEG 3201 Microelectronic Devices and Circuits		
Biomedical Imaging, Informatics & Mode	ling (MII)			
BMEG3102 Bioinformatics	BMEG 3103 Big Data in HealthCare	BMEG 3105 Data Analytics for Personalized Genomics and Precision Medicine	CSCI course(s) * Students are allowed to take a	
BMEG3440 Global Engineering Medical Innovation	BMEG4103 Biomedical Modelling	BMEG4220 Wearable Biomedical Devices and IoT in Healthcare	maximum of 3 units of CSCI course(s) at 1000 or above level	
BMEG4320 AI & Imaging for Biomedical Engineering	BMEG4330 Advanced Imaging and Spectroscopy Techniques in Biomedicine	BMEG4520 Cardiovascular Engineering		
Molecular, Cell & Tissue Engineering (BC	<u>TTE)</u>			
BMEG 3105 Data Analytics for Personalized Genomics and Precision Medicine	BMEG3140 Molecular and Cellular Engineering Laboratory	BMEG3210 Biofluids	CSCI course(s) * Students are allowed to take a maximum of 3	
BMEG3440 Global Engineering Medical Innovation	BMEG4410 BioMEMS	BMEG4450 Bionanotechnology	units of CSCI course(s) at 1000	
BMEG4510 Biomolecular Engineering	BMEG4520 Cardiovascular Engineering	BMEG4530 Musculoskeletal Tissue Engineering	or above level	
MBTE4320 Genetic Engineering				

### Course Registration for 1st term courses -CUSIS

- Register your courses through CUSIS during your allotted timeslot on <u>29 August 2023 (\*10:00am - 10:00pm)</u>
- For details of University Core, please visit RES website: <u>http://www.res.cuhk.edu.hk/en-gb/undergraduate-</u> <u>students/information-for-year-1-students/information-on-university</u> <u>core-requirements-and-exemption/university-core-requirements-for-year-1-students</u>
- \* Login time is from 10:00 a.m. for new students admitted with Advanced Standing or admitted to senior-year places and those admitted to Medical Year 2 or above. Other students' login time is from 11:00 a.m.

### **Add/Drop Courses**

Date / Time	Add/Drop
11 September 2023 (8:30pm) -	CUSIS e-Add/Drop
17 September 2023 (8:30pm)	

- You are strongly advised to plan and select courses very carefully
- You should give priority to **Pre-assigned** courses
- Minimum no. of units in a term: 9
- Maximum no. of units in a term: 18
- Maximum no. of units in *summer term*: 6
- Maximum no. of units in an academic year: 39 (summer courses included)

#### Note:

First-year students (excluding senior year entrants) are allowed to take up to <u>19 units</u> in each term (2023-24 T1 & T2). The maximum no. of units in an academic year will remain 39.

# **Double Degree Option**

#### ERG-BBA

- 1<sup>st</sup> degree: Bachelor of Engineering (Biomedical Engineering)
- 2<sup>nd</sup> degree: Bachelor of Business Administration (Integrated BBA Programme)
- Collaborated with the Faculty of Business Administration
- Subject to the approval of the two Faculties/Programs concerned
- Must complete at least 30 units of Integrated BBA Programme courses within the normative / minimum study period of 1<sup>st</sup> degree
- For further information, please refer to the Faculty website at <a href="http://www.erg.cuhk.edu.hk/erg/ergbba">http://www.erg.cuhk.edu.hk/erg/ergbba</a>

# **Minor Programmes**

- Students can take up to two minors programmes
- 18-30 units for each minor programme

For details, please refer to the section "Requirements of Major Programmes and Minor Programmes" under the 4-year normative curriculum of the <u>Undergraduate Student Handbook</u>.

# Biomedical Engineering Outstanding Achievement Scholarships

#### Number of Awards

EIGHT awards, \$10,000 each

Open to students for application in every academic year! (at the end of the 2<sup>nd</sup> semester, around June every year)

#### Eligibility and Award Criteria

- Year 1 to Year 4 or above BME undergraduate students
- Year GPA of 3.0 or above in the previous year of study
- Participated in co-curricular and/or extra-curricular activities:
  - Awards, especially those related to BME discipline
  - Community Service, e.g. contribution to BME Department and/or Profession
  - Other achievement, e.g. sports, competitions, voluntary work
  - Financial needs



# BME Outstanding Achievement Scholarship 2022-23

### Award Presentation

Name	Year of Study in 2022-23
Michelle LEE (join on ZOOM)	Year 1
HUI Hoi Lam	Year 2
LEUNG Chung Ki Ricky	Year 2
WANG Shih Yu Yolanda	Year 3
CHAN Chi Chau Ben (absent with apologies)	Year 3
LI Ho San	Year 4
NIP Yung Lok Jason	Year 4
SZE Hoi Kuen Patrick (absent with apologies)	Year 4

#### Number of Award

EIGHT awards of \$10,000 each

#### Eligibility and Award Criteria

✓ Year 1 to Year 4 or above BME undergraduate students

✓ Year GPA of 3.0 or above in the previous year of study

✓ Participated in co-curricular and/or extra-curricular activities:

- Awards, especially those related to BME discipline
- Community Service, e.g. contributions to BME Department and/or Profession
- Other achievement, e.g. sports, competitions, voluntary work

✓ Financial needs

### University General Regulations (10.0) Academic Probation and Discontinuation of Studies

10.1 A student shall be put on <u>academic probation</u> if s/he has obtained a <u>grade point average below 1.5</u> in the preceding term, unless Regulation 10.4 applies.

10.2 Notwithstanding Regulation 10.1, a student who has obtained a grade point average below 1.0 in a term or who has failed in more than half of the units of courses taken in a term shall be required to discontinue studies in accordance with Regulation 10.4(c), unless s/he has submitted an application in writing to continue studies, and such application has been approved by the Major Programme concerned.

10.3 A student on academic probation shall be required to take a reduced load as prescribed in Regulation 5.2. <u>His/Her performance</u> shall be reviewed at the end of the term in which s/he is put on probation, at which time if s/he has obtained a grade point average of 1.5 or above, probation shall be lifted, otherwise probation shall continue to apply in the next term of attendance unless s/he is required to discontinue studies as prescribed by Regulation 10.4 or s/he has completed all graduation requirements as set out in Regulation 12.1.

10.4 A student shall be required to discontinue studies at the University:

(a) if his/her grade point average in a term is below 1.0 for two consecutive terms of attendance; or

(b) if s/he fails in more than half of the units of courses taken in a term for two consecutive terms of attendance; or

(c) if s/he obtains a grade point average below 1.0 or fails in more than half of the units of courses taken in a term, unless permission to continue studies from the Major Programme concerned is obtained; or

(d) if s/he still fails to have probation lifted after s/he has been put on academic probation for two consecutive terms of attendance; or (e) if, after two attempts, s/he still fails to meet the minimum grade required for specified courses or pass the relevant examinations (if any) as prescribed by his/her Major Programme, unless otherwise decided by the Board of the Faculty to which s/he belongs or s/he is successful in obtaining transfer to another Major Programme in the next term of attendance; or

(f) if s/he fails to fulfil all requirements for graduation within the years specified in Regulation 3.0 and detailed in the Annex.

10.5 With the exception of Regulation 10.4(e), regulations on academic probation and discontinuation of studies shall not apply to students taking courses in summer sessions.

Extracted from <a href="http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx/Public/Handbook/document.aspx?id=1984&tv=F&lang=en">http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx/Public/Handbook/document.aspx?id=1984&tv=F&lang=en</a>

# **Important Regulations**

### **Study Period**

Normative study period: 4 years

Maximum study period: 6 years

(including any periods of leave of absence and suspension of studies, but excluding any periods of compulsory military service)

### **Change of Study Period**

Participating in approved exchange programs and internship schemes will be allowed

UG Student Handbook: <a href="http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx">http://rgsntl.rgs.cuhk.edu.hk/aqs\_prd\_applx</a>

# Keep check CUHK Email Account and reply us!

All important messages will be sent to your CUHK email account. Please check your CUHK email account regularly!

When emailing your academic advisor, course instructors or major programme administration, be professional, courteous and clear. Your email should include the following details:

- A subject line to state the purpose of your email
- Your full name
- Student ID
- Course code and name
- Other main information as appropriate

### **BME Internships Opportunities**

Overseas Summer Research Internship (past opportunities)

Hosting Institution	
Columbia University, US	In
Michigan State University, US	Uı
Northwestern University, US	U
University of Pennsylvania, US	Na
University of Pittsburgh, US	Na
University of California, US	Te
University of California at San Diego, US	Cl
University of California at Irvine, US	Ko
University of Illinois at Urbana-Champaign, US	

mperial College, UK University of Toronto, Canada University of Sydney, Australia National University of Singapore, Singapore Nanyang Technological University, Singapore Fechnika University of Gdańsk, Poland Chang Gung University, Taiwan Korea Institute of Science & Technology, South Korea

Other past summer BME internship opportunities include:

- Public sector: EMSD, HKPC
- Medical sector: PWH, HA, local private hospitals (e.g. Hong Kong Adventist Hospital-Tsuen Wan & Stubbs Road, Gleneagles Hospital, St. Paul Hospital etc.), Johnson & Johnson Medical Devices, Stryker, Celki Medical etc.
- Academic sector: CAS SIAT, HKSTP, Professors' lab





### **Overseas Exchange**

Stony Brook University



# BME Activities 2021-22 & 2022-23

#### Career Forum





#### **Alumni Sharing**





#### MRC Lab visit

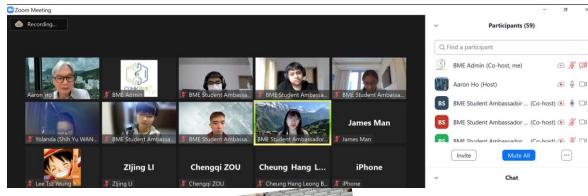


#### Annual Spring Dinner



# BME Activities 2021-22 & 2022-23

#### Academic Counselling for New Year 1 Students







### Where do our BME graduates go?

- Manufacturing Industries
- Clinical Engineers in Hospitals
- Entrepreneurs in Biotech Companies
- Regulatory Affairs
- Distribution & Sale
- Testing Laboratories
- Research Scientists & Engineers
- Further Studies (MSc, PhD, MD, MBA, PCLL)







### Where do our BME graduates go?

Others

Engineering /

Product Support

9%

**Medical Sales** 

/ Marketing

26%

Lab /

Research

23%

#### BME Graduates Employment Survey (20,21,22)

- HKFYG (Creative Education Unit)

45%

**Further Study** 

MBChB. MSc

e.g. MPhil, PhD,

**Others** 

#### **Engineering / Product Support**

- Electrical and Mechanical Services Department
- Celki Vitalaire
- Most Glory Trading Limited
- Getinge Group HK
- Roche Diagnostic
- Eppendorf China Limited
- Sanwa Biotech
- Hong Kong Adventist Hospital (Tsuen Wan)

#### Medical Sales / Marketing

- Johnson & Johnson
- Philips
- Siemens
- Ultronics Enterprise Limited

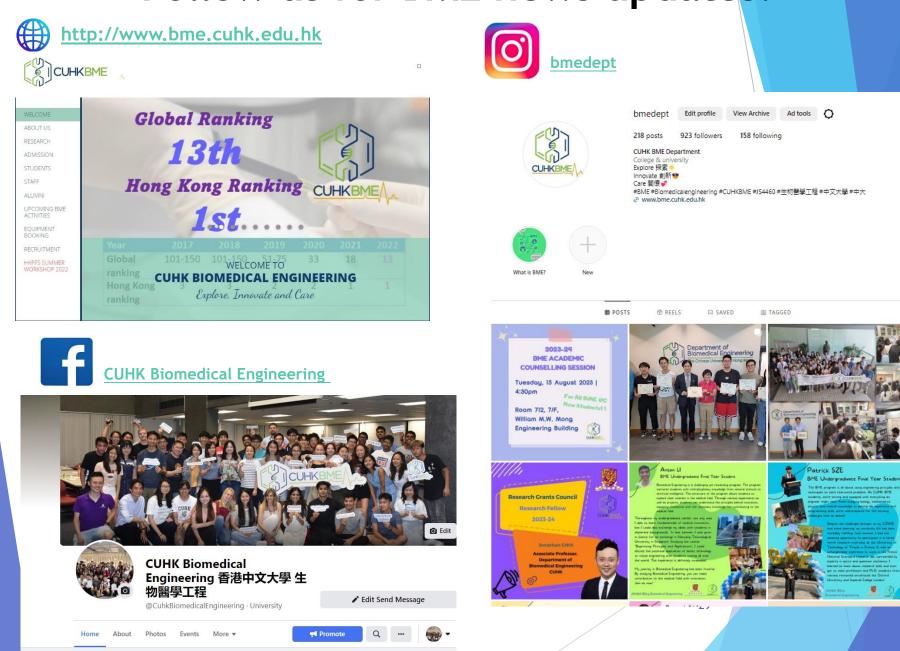
#### Lab / Research

- CUHK
- PolyU CityU
- Center for Neuromusculoskeletal Restorative Medicine (CNRM)
- Hong Kong Centre for Neurodegenerative Disease Limited

#### Further Study

- CUHK
- The Education University of Hong Kong
- Auckland University of Technology
- Seoul National University
- University of Toronto
- National University of Singapore
- Imperial College London
- University of Nottingham

### Follow us for BME news updates!



#### CUHK BME Cabinet: 醫澔烆星 Asteria



#### cuhk\_asteria







#### CUHK BME Alumni Association



cuhkbmealumni@gmail.com

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CUHK BME Alumni Association @cuhkbmealumni	THE CHINESE D BIOMEDICAL EN		Hong Kong ani Association
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Reviews Videos Photos	Posts	No rating	g yet
Photos About Community	CUHK BME Alumni Association 15 July at 08:43 ④ [HA 同場加映] Electrical Technician 做medical equipment 的維修保養等等 Salary: 26 289-48,013	Community iii 199 people 204 people	See all e like this e follow this
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