

BEng (Hons) in Biomedical Engineering

Academic Counselling 2019-20



CUHK Biomedical Engineering



History of BME

- **2006**
 - Launch of the Graduate Division
- **2007**
 - Launch of the MSc Programme
- **2010**
 - Launch of the BEng (Hons) Programme
- **2012**
 - Launch of the MPhil/PhD Programme
- **2017**
 - Establishment of the BME Department





BME Faculty Members + Core Faculty Member



Professor



Prof. Thierry Blu Prof. Wai Sang POON Prof. Arthur Mak Emeritus Professor



Adjunct Professor



Prof. Max MENG Professor



Prof. Louis CHEUNG Associate Professor



Prof. Emma MacPHERSON Prof. Megan HO Associate Professor



Assistant Professor



Prof. Darwin LAU Assistant Professor



Prof. Kevin YIP Associate Professor



Prof. Samuel Au Associate Professor Professor



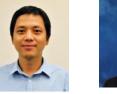
Prof. Aaron HO



Prof. Vivas Chan



Prof. Shih-Chi CHEN Prof. CHEN Weitian Associate Professor Assistant Professor



Prof. Liting Duan Assistant Professor Professor



Prof. Philip CHIU



Assistant Professor



Dr. Ho Owen KO Assistant Professor Professor



Prof. Ann HENG



Prof. Rocky TUAN Prof. Tan LEE President



Associate Professor



Prof. Kenneth LEE , Professor



Prof. Gang LI Professor



Prof. Sebastian BEYEBrof. Wei Hsin LIAO Research Assistant Professor



Prof. Li ZHANG Professor Associate Professor



Prof. Jonathan CHOIProf. Zheng LI Assistant Professor



Prof. Vincent MOK Assistant Professor Professor



Prof. Raymond TONG Professor & Chairman



Prof. Ling QIN Professor



Prof. Renjie ZHOU Assistant Professor



Professor



Prof. Nelson TANG Prof. Hans GREGERSEN Professor



Prof. Lin SHI Assistant Professor



Prof. Chao WAN Associate Professor



Prof. Yi Xiang WANG Associate Professor



Prof. Xiaogang WANG Prof. Ni ZHAO Associate Professor



Associate Professor Professor



Prof. Wing Ho YUNG



Prof. Liming BIAN **Associate Professor**

Biomedical Engineering (BME)

Biology

Biomedical
Engineering

Engineering

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

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

BME Curriculum Structure

University Core Requirements#		
	<u>Units</u>	
Chinese Language	6	
English Language	9	
University GE	9	
College GE	6	
Foundation Courses	6	
IT*	1 (exempted)	
PE	2	
Total:	38	

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

Let's talk about here

Free Electives: 10

Minimum Units for Graduation: 123

Students are exempted from the course but not the unit

For details of University Core, please visit: http://www.res.cuhk.edu.hk Study scheme: http://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx

^{*}Students who have fulfilled the Major Programme Requirements of any engineering programmes (or equivalent courses as approved by the Sub-Committee on Education Technologies) will be exempted from the 1 unit IT Foundation Course.

Recommended Study Pattern: Year 1

	Units	Pre- assigned
Year 1 - Term 1		
BMEG2001 Introduction to Biomedical Engineering	1	✓
CHEM1280 Intro to Org Chm & Biomolecule/	0-3	
CHEM1380 Basic Chemistry for Engineers/		
LSCI1001 Basic Concepts in Biological Sciences/		
LSCI1003 Life Sciences for Engineers		
MATH1510 Calculus for Engineers	3	✓
 PHYS1110 Engineering Physics: Mechanics and Thermodynamics 	3	√
SBMS1431 Human Anatomy and Physiology I	2	✓
Year 1 - Term 2		
ENGG1120 Linear Algebra for Engineers	3	\checkmark
 ENGG1130 Multivariable Calculus for Engineers 	3	\checkmark
 CHEM1280 /CHEM1380 /LSCI1001 /LSCI1003 (if not taken in Term 1) 	0-3	
SBMS1432 Human Anatomy and Physiology II	2	✓
*Year 1 - Summer (4 weeks)		
Summer Training from BMEG2011* (A summer workshop; reserve your	-	
time & take it in year-1 summer!!!)		

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)

*For those who have passed summer training in Year 1 summer,

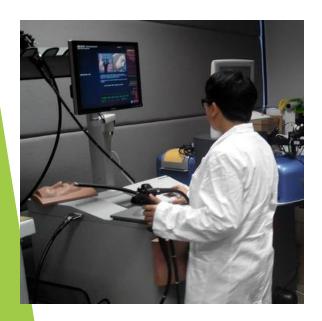
BMEG2011 Biomedical Engineering Laboratory and Hospital Experience will be pre-assigned in Year 2 term 2.

BME summer training

Two-week training at the **Prince of Wales Hospital** for Year 1 students:

- Daily operation, information flow and logistics in the clinic
- Fundamentals and basic operation of medical instruments









Recommended Study Pattern: Year 2

	Units	Pre- assigned
Year 2 - Term 1		
ENGG1110 Problem Solving By Programming	3	\checkmark
BMEG2210 Orthopaedic Biomechanics and Musculoskeletal Injury	3	\checkmark
BMEG2410 Complex Analysis and Differential Equations	3	\checkmark
Year 2 - Term 2		
BMEG2011 Biomedical Engineering Laboratory and Hospital Experience*	2	\checkmark
BMEG2300 Circuits and Signals for Biomedical Engineering	3	\checkmark
 ENGG1310 Engineering Physics: Electromagnetics, Optics and Modern Physics 	3	\checkmark
SBMS1440 Cell and Molecular Biology in Biomedical Engineering	2	\checkmark
STAT3210 Statistical Techniques in Life Sciences	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) BMEG3101 Medical Instrumentation and Design	9	
(3) BMEG3320 Biomedical Imaging	2	
Major Elective: 1 course	3	
<u>Year 3 - Term 2</u>	2	
Major required: BMEG4010 Global Medical Device Regulatory Affairs Major Elective: 2 courses	3 6	
·		
Year 4: Work-Study if you want to Note: may get one unit from ENGG1820 Engineering Internship		
Year 4 - Term 1 (or Year 5 for workstudy)	2	/
Major required: BMEG4998 Final Year Project I Major Elective: 1 course	3 3	V
Just talk to your Academ	ic Adv	isor!
Year 4 - Term 2	3	√
Major required: BMEG4999 Final Year Project II Major Elective: 1 course	3	

Important Notes

Placement test for foundation courses - Local students

(1) Mathematics placement test

- Non-JUPAS admittees and JUPAS admittees with HKDSE Mathematics Extended Modules I or II are required to attend a <u>Mathematics</u> Placement Test
- The placement test will be held after the Academic Counselling. (details will be informed by Faculty Office)

(2) Physics placement test

- Students without HKDSE result shall sit for the Physics placement test.
- Students will be invited to attend the test which shall be arranged by the Physics Department (details will be informed by Faculty Office)

Important Notes

Placement test for foundation courses - Non-local students

(1) Mathematics placement test

- Non-JUPAS admittees and JUPAS admittees with HKDSE Mathematics Extended Modules I or II are required to attend a <u>Mathematics</u> <u>Placement Test</u>
- The placement test will be held after the Academic Counselling. (details will be informed by Faculty Office)
- MATH1020 and MATH1510 will be pre-assigned to you.
- MATH1020 will be dropped before the add/drop period if you can pass the test.

(2) Physics placement test

- Students without HKDSE result shall sit for the Physics placement test.
- Students will be invited to attend the test which shall be arranged by the Physics Department (details will be informed by Faculty Office)

Important Notes

[a]	i)	Students who have attained Level 4 or above in HKDSE Mathematics (Compulsory Part) <u>AND</u> Level 4 or above in Physics <u>or</u> Level 5 or above in Combined Science with Physics Component shall take PHYS1110.		
	ii)	Students with HKDSE results but did not attain the academic levels as stated in (i) shall take PHYS1003 in advance. PHYS1003 would be counted as a <u>free elective</u> but could not be used to fulfill the Foundation Science course requirements.		
	iii)	Students without HKDSE results shall sit for the <u>placement test</u> arranged by the Department of Physics. Students who <u>pass the placement test shall take PHYS1110</u> . Students who fail or are <u>absent from the placement test shall take PHYS1003</u> in advance. PHYS1003 would be counted as a <u>free elective</u> but could not be used to fulfill the Foundation Science course requirements.		
[b]	Students are strongly advised to take any one course from CHEM1280 or 1380 if they have not attained Level 3 or above in HKDSE Chemistry, or other equivalent qualifications.			
[c]	Students are strongly advised to take either LSCI1001 or 1003 if they have not attained Level 3 or above in HKDSE Biology, or other equivalent qualifications. LSCI1001 is only for students who have not taken science courses with Biology component in HKDSE.			
[d]	i)	i) Non-JUPAS admittees and JUPAS admittees with HKDSE Mathematics Extended Modules I or II are required to attend a <u>Mathematics Placement Test</u> . Students who fail or are absent from the Placement Test will be required to take MATH1020 in the same term when they take MATH1510.		
	ii)	JUPAS admittees without HKDSE Mathematics Extended Modules I or II are required to take MATH1020 concurrently with MATH1510.		
	iii)	Students who fail MATH1510 in Term 1 will have to retake the course in Term 2. The preassigned course, ENGG1130, will also be dropped.		
[e]	Students admitted in 2017-18 and thereafter will be exempted from ENGG1000 when they have successfully fulfilled the major programme requirements of any engineering programme. Such students DO <u>NOT</u> need to apply for exemption to the IT Foundation Course Office. The student will satisfy the requirement of ENGG1000 advisement rule in CUSIS automatically whenever they have fulfilled all the major programme requirements of an engineering programme.			

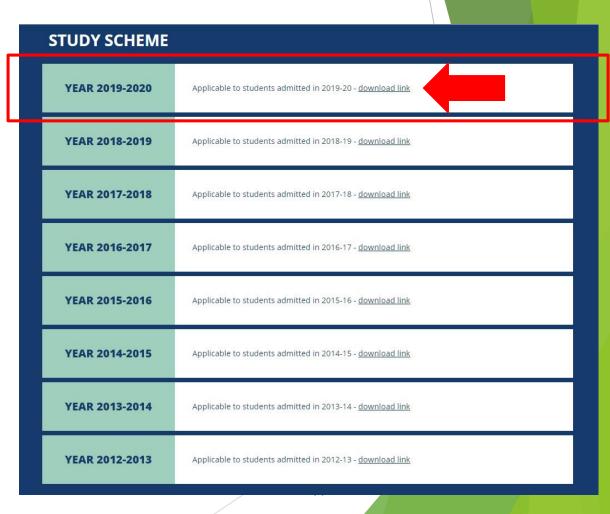
Stream Specialization

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

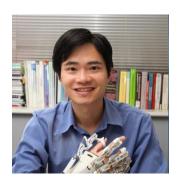
billed 4777 and 4777[e], prescribed by the stream			
Medical Instrumentation & Biosensors (MIB)			
BMEG3420 Medical Robotics	BMEG3210 Biofluids	BMEG3330 Neuroengineering	
BMEG3130 TeleMedicine & Mobile Healthcare	BMEG4220 Body Sensor Networks	BMEG4410 BioMEMS	
BMEG4520 Cardiovascular Engineering	BMEG4450 Bionanotechnology	ELEG 3201 Microelectronic Devices and Circuits	
ENGG 2120 Introduction to Digital and Microprocessor Systems BMEG4330 Advanced Imaging and Spectroscopy Techniques in Biomedicine			
Biomedical Imaging, Informatics & Modeling (MII)			
BMEG3102 Bioinformatics	BMEG 3103 Big Data in HealthCare	BMEG4103 Biomedical Modelling	
BMEG 3105 Data Analytics for Personalized Genomics and Precision Medicine	BMEG 3120 Database and Security for Biomedical Engineering	BMEG4320 Biomedical Imaging Applications	
BMEG4330 Advanced Imaging and Spectroscopy Techniques in Biomedicine			
Molecular, Cell & Tissue Engineering (BCTE)			
BIOL2120 Cell Biology	BMEG4410 BioMEMS	BMEG4450 Bionanotechnology	
BMEG4510 Biomolecular Engineering	MBTE4320 Genetic Engineering	BMEG3210 Biofluids	
BMEG4530 Musculoskeletal Tissue Engineering			

How to get Study Pattern?

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



Academic Advisors in BME



Prof. Raymond TONG Professor & Chairman



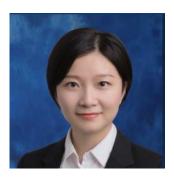
Prof. Sebastian BEYER Research Assistant Professor



Prof. Liming BIAN Associate Professor



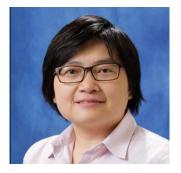
Prof. Jonathan CHOI Assistant Professor



Prof. Liting Duan Assistant Professor



Prof. Aaron HO Professor

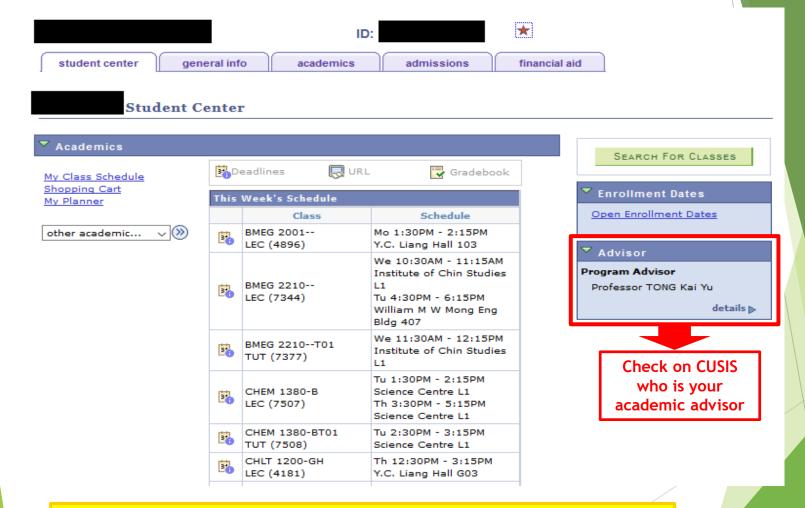


Prof. Megan HO Assistant Professor



Prof. Renjie ZHOU Assistant Professor

Academic Advisor



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

Course Registration - CUSIS

- Register your courses through CUSIS during your allotted timeslot on <u>23 August 2019</u> (*10:00am - 10:00pm)
- Select courses for 1st Term only
- For details of University Core, please visit
 RES website:

http://www.res.cuhk.edu.hk/en-gb/undergraduatestudents/information-for-year-1-students/information-onuniversity-core-requirements-and-exemption/universitycore-requirements-for-year-1-students

^{*} 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
	CUSIS e-Add/Drop
15 September (8:30pm)	

- You are strongly advised to plan and select courses very carefully
- You should give priority to Pre-assigned courses
- \circ *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 are allowed to take up to 19 units in each term. The maximum no. of units in an academic year will remain 39.

Double Degree Option

ERG-BBA

- 1st degree: Bachelor of Engineering (Biomedical Engineering)
- 2nd 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 1st degree
- For further information, please refer to the Faculty website at http://www.erg.cuhk.edu.hk/erg/ergbba

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</u> <u>Student Handbook</u>.

BME internships opportunities

Overseas Summer Research Internship (past opportunities)

Hosting Institution

- · University of California at Irvine
- Columbia University
- Imperial College
- Korea Institute of Science & Technology
- Northwestern University
- University of Pittsburgh
- National University of Singapore
- University of Toronto
- Nanyang Technological University
- The University of California
- University of California at San Diego
- University of Illinois at Urbana-Champaign

Other past summer BME internship opportunities include:

- Public sector: HKPC, EMSD
- Medical sector: PWH, local private hospitals, HA
- Academic sector: CAS SIAT, HKSTP, and many other overseas universities

Student Advising on internships opportunities: Prof. Megan Ho

Overseas Exchange

































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)





















Innovation and care



























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: http://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx

Leave of Absence Exceeding 1 Week

- Medical reasons: written application, supported by a certificate signed by the Director of University Health Service/ Medical certificate, endorsed by Major Programme
- Non-medical reasons: <u>prior permission</u> from the Registrar through written application, endorsed by Major Programme

Extension of assignment submission due date

 Medical reasons: Submit the written application, supported by a Medical certificate on or before the assignment submission due date to the course instructor for approval

 Rules to be Observed by Candidates at Examinations Centre

UG Student Handbook: http://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx

Regulations and Rules - Rules to be Observed by Candidates at Examination Centre

 General Arrangements for Classes and Examinations on Approach of Typhoons and Rainstorms

Ug Student Handbook: http://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx

Regulations and Rules - Other Useful Information - General Arrangements for Classes and Examinations on Approach of Typhoons and Rainstorms

Contact Information BME General Office

Location

- ▶ Room 540, 5/F, Sino Building, CUHK (temporary office)
- Room 1120, 11/F, William M.W. Mong Engineering Building (ERB) (new office is under renovation now, will move in around late October)

Opening Hours

Monday to Thursday: 8:45am - 5:30pm

Friday: 8:45am - 5:45pm

Saturday, Sunday and Public Holiday: Closed

Contact

Tel: +852 3943 1935 (Ms Jeannie NG)

Fax: +852 3942 1024

Email: bmeinfo@cuhk.edu.hk

Facebook: https://www.facebook.com/CuhkBiomedicalEngineering/

Instagram: https://www.instagram.com/bmedept/

Keep check CUHK Email Account and reply us!

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

When emailing your academic advisor, course instructors and major programme, be professional, courteous and clear. Your email must be included all of the necessary details such as:

- Email subject line
- Your full name
- Student ID
- Course code and name

Useful Websites

- Undergraduate Student Handbook <u>http://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx</u>
- Chinese University Student Information System (CUSIS) https://portal.cuhk.edu.hk
- Registration and Examinations Section (RES) <u>http://www.res.cuhk.edu.hk</u>
- Teaching Timetable
 http://www.res.cuhk.edu.hk/en-gb/teaching-timetable-classroom-booking/teaching-timetable
- Almanac <u>http://www.res.cuhk.edu.hk/en-gb/general-information/university-almanac</u>

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CUHK BME Cabinet: Arbitrium 醫資選







CUHK BME Alumni Association





