

(For all students in the Program)

Undergraduate Minor Program in Bioengineering

The Minor Program in Bioengineering is designed for undergraduate students interested in applying engineering principles to biological problems. Any undergraduate students at HKUST with a minimum CGA of 2.15 or above may enroll in the Bioengineering Minor Program. Students must declare their intention to enroll in the minor program no earlier than the first regular term of their second year of study but no later than the last day of the add/drop period in the first regular term of their final year of study. Students who wish to withdraw from the minor program should apply before the last day of add/drop period in the last regular term of their study.

Minor Requirements

To graduate with a minor in Bioengineering, students must be enrolled in the minor program, complete a minimum total of 18 credits and all of the minor requirements, as well as the requirements of the major program of study; and have attained an average grade point of at least 2.15 in courses taken within the minor program.

For credit transfer, students can transfer a maximum total of 6 credits to the minor program. Courses accepted for transfer credits must normally be at a level equivalent to HKUST courses of 2000-level or above.

For students admitted in 2012-13 or after, at least 9 credits out of the total credits required by the minor program should be single-counted within the minor and are not used to fulfill any other requirements for graduation except the 120-credit degree requirement.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

Required Course(s)

			Credit(s) attained
BIEN/CENG/ BMED		Note: (BIEN 1010 <u>OR</u> CENG 1600) <u>OR</u> CENG 4620 <u>OR</u> CENG 4660 <u>OR</u> BMED 1100	3
BIEN	1010	Introduction to Biomedical Engineering	3
BMED	1100**	Technologies and World Health	3
CENG	1600	Biotechnology and Its Business Opportunities	3
CENG	4620	Bioproducts and Processing	3
CENG	4660	Introduction to Biomicrosystem	3
BIEN/LIFS		Note: BIEN 2610 <u>OR</u> LIFS 1020 <u>OR</u> LIFS 2030 <u>OR</u> LIFS 2040 <u>OR</u> LIFS 2210	3
BIEN	2610	Chemical Biology for Engineers	3
LIFS	1020	Biology of Human Health	3
LIFS	2030**	Nature of Biochemistry and Biotechnology	3
LIFS	2040	Cell Biology	3
LIFS	2210	Biochemistry I	3

Elective(s)

			Minimum credit(s) required
SENG/SSCI/ IPO		Elective for specialised study in Bioengineering (Courses from the specified elective list, of which at least 1 course should be at 4000-level. No more than one course within the same course group can be counted toward the elective requirements of this minor. Course(s) taken as required course(s) of the program may not be counted toward this elective requirement. Students may visit the program website for a summary of electives grouped by areas of concentration.)	12
Group 01			
BIEN	2610	Chemical Biology for Engineers	3
LIFS	1020	Biology of Human Health	3
LIFS	2030**	Nature of Biochemistry and Biotechnology	3
LIFS	2040	Cell Biology	3
LIFS	2210	Biochemistry I	3
LIFS	2220	Biochemistry II	3
Group 02			
LIFS	4060	Immunobiology	3
LIFS	4150	Plant Biotechnology	3
LIFS	4630	Advanced Topics in Biotechnology	3
Group 03			
COMP	4331	Data Mining	3
LIFS	3150	Biostatistics	3
LIFS	4580	Bioinformatics	3
Group 04 (Students may only use either BIEN 1010 or CENG 1600, but not both, to count towards the minor program)			
BIEN	1010	Introduction to Biomedical Engineering	3
BMED	1100**	Technologies and World Health	3
CENG	1600	Biotechnology and Its Business Opportunities	3
CENG	4620	Bioproducts and Processing	3
CENG	4630	Food Processing Technology	3
CENG	4660	Introduction to Biomicrosystem	3
Group 05			
CENG	1500	A First Course on Materials Science and Applications	3
CENG	4520**	Electronic Materials Processing for Chemical Engineers	3
CENG	4540	Nanomaterials and Applications in Chemical Engineering	3
MECH	2410	Engineering Materials I	3
Group 06			
CENG	4670	Pharmaceutical Engineering	3
LIFS	4370	Human Genetics and Personalized Medicine	3
LIFS	4760	Biochemistry of Diseases	3

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LIFS	4950	Neurochemistry	3
Group 07			
COMP	1001	Exploring Multimedia and Internet Computing	3
COMP	1002**	Computer and Programming Fundamentals I	3
COMP	1004**	Programming Fundamentals and Methodology	4
COMP	1022P	Introduction to Computing with Java	3
Group 08			
COMP	4421	Image Processing	3
ELEC	4130	Digital Image Processing	3
Group 09			
ELEC	2400	Electronic Circuits	4
ELEC	2410**	Basic Electronics	4
ELEC	2420	Basic Electronics	3
Group 10			
ELEC	4810	Introduction to Biosensors and Bioinstrumentation	4
Group 11			
ELEC	4820	Medical Imaging	3
Group 12			
IEDA	2510	Engineering Probability and Statistics	4
MECH	4740	Numerical Methods in Engineering	3
Group 13			
MATH	4333	Mathematical Biology	3
Group 14			
BIEN	3010	Biodesign: A Taste of Solving Real-Life Healthcare Problems	3
Group 15			
BIEN	3020	Advanced Biological Physics	3
LIFS	3040	Animal Physiology	3
LIFS	3070	Biophysics and Physical Biochemistry	3
LIFS	3240	Introduction to Neurobiology	3
LIFS	4140	Cancer Biology	3
Group 16			
MECH	2210	Fluid Mechanics	3
MATH	4326	Introduction to Fluid Dynamics	3

****Remarks on course(s):**

- BMED 1100: The course was last offered in 2014-15 and was deleted subsequently.
- CENG 4520: The course was last offered in 2013-14 and was deleted subsequently.
- COMP 1002: The course was last offered in 2012-13 and was deleted subsequently.
- COMP 1004: The course was last offered in 2012-13 and was deleted subsequently.
- ELEC 2410: The course was last offered in 2012-13 and was deleted subsequently.
- LIFS 2030: The course was last offered in 2013-14 and was deleted subsequently.