

**B.Eng (Hons) in Bioengineering CNYang Scholars Programme with 2nd Major in Data Analytics**  
 AY2025 - 2026 Intake onwards (BEDA CNYSP)

Programme	Year of Study	Number of Academic Units (AU)							
		Major Requirement			Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	Total
		School Core (C)	CNYang Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
Bioengineering (CNYang)	1	10 [4]	23		2				35
	2	27 [3]	10		8		3		48
	3	21				6		3	30
	4	9		6 [3]		3		19	37
	Total	67 [7]	33	6 [3]	10	9	3	22	150

Category			AU	Total AU
Interdisciplinary Collaborative Core (ICC)	<b>Common Core (CC)</b>			
	CC0006	Sustainability: Society, Economy & Environment	3	10
	CC0015	Health & Wellbeing	2	
	ML0004	Career Design & Workplace Readiness in the V.U.C.A World	2	
	SP0061	Science & Technology for Humanity	3	
Interdisciplinary Collaborative Core (ICC)	<b>Professional Series (PS)</b>			
	CB0494	Introduction to Data Science and Artificial	3	9
	MLXXXX	Professional Preparation	1	
	BG3910	Professional Attachment	5	
	<b>Care, Service, Learn (CSL)</b>			
Major Requirement	Tech-For-Good (T4G)		3	3
	<b>BIE Core</b>			
	EG1001	Engineers In Society	2	36
	CB1102	Introduction to Chemical and Biomedical Engineering	1	
	CB1117^	Engineering Mathematics	4	
	BG1141	Cellular & Molecular Biology for Bioengineers	3	
	CB2002	Introduction to Chemical and Biological Safety	1	
	BG2103	Signal Processing in Biosystems	3	
	BG2104	Electronics for Biomedical Engineering	3	
	BG2110	Bioelectricity	3	
	BG2119	Anatomy and Physiology	3	
	BG2131	Biomaterials	3	
	BG2142	Biological Thermodynamics	3	
	BG2209	Mechanics for Bioengineers	3	
	BG2211^	Introduction to Computational Thinking	3	
	BG2801	Bioengineering Lab 2A	1	

Major Requirement	BG2802	Bioengineering Lab 2B	1	31	
	BG3102	Control in Biosystems	3		
	BG3104	Biomedical Imaging	3		
	BG3105	Biomedical Instrumentation	3		
	BG3112	Cardiovascular Engineering	3		
	BG3801	Bioengineering Lab 3	1		
	BG4104	Machine Learning and Optimization for Bioengineers	3		
	BG4122	Medical Device Design	6		
	BG4211	CNYSP Overseas Final Year Project	8		
	<b>CNYSP Core</b>				33
	CY0001	Writing Across the Disciplines	3		
	CY0002	Ethics	3		
	CY1001	Cell	3		
	CY1007	Climate Change	3		
	CY1101	Molecule	4		
	CY1308	Physics	3		
	CY1500	Introduction to Research	2		
	CY1601	Mathematics I	4		
	CY2001	Research Attachment 1	4		
	CY2003	Research Attachment 3	4		
	<b>BIE Major Prescribed Electives (MPE)</b>				6
	CH2010^	Engineering Statistics	3		
	BIE PE 2		3		
2nd Major in Data Analytics (BDEs)	<b>Data Analytics Compulsory Courses</b>			19	
	1) Linear Algebra: CB1117 Engineering Mathematics		NA		
	2) Computing Skills: BG2211 Introduction to		NA		
	3) Probability and Statistics: CH2010 Engineering Statistics		NA		
	4) Algorithms: MH1403 Algorithms & Computing		3		
	5) Database: EE4791 Database Systems		3		
	6) Data Mining: IE4483 Artificial Intelligence & Data Mining		3		
	7) Data Visualisation/Management: BC2406		4		
	<b>Electives</b>				
CH4244 Numerical Method and Data Analytics		3			
CB4246 Optimisation Using Artificial Intelligence		3			
2nd Major in Data Analytics (BDEs)	<i>Choose from the following:</i>			3	
	EE4414 Machine Learning Design & Application (3AU)				
	EE4497 Pattern Recognition & Machine Learning (3AU)				
	MA4829 Machine Intelligence (3AU)				
	MA4830 Real Time Software for Mechatronics System (3AU)				
	MA4832 Microprocessor System (3AU)				
	MS4671 Introduction to Materials Simulation (3AU)				
<b>Total</b>			<b>150</b>		

^Counted towards 2nd Major in Data Analytics requirement (total 10AU)

**B.Eng (Hons) in Bioengineering CNYang Scholars Programme with 2nd Major in Data Analytics**

AY2025 - 2026 Intake onwards (BEDA CNYSP)

**with Professional Attachment****Year 1 Semester 1**

Course	Type	AU
CB1102 Introduction to Chemical and Biomedical Engineering	C	1
BG1141 Cellular & Molecular Biology for Bioengineers	C	3
CY1001 Cell	C	3
CY1101 Molecule	C	4
CY1308 Physics	C	3
CY1500 Introduction to Research	C	2
CY1601 Mathematics 1	C	4

**20****Year 2 Semester 1**

Course	Type	AU
BG2119 Anatomy and Physiology	C	3
BG2131 Biomaterials	C	3
BG2142 Biological Thermodynamics	C	3
BG2211^ Introduction to Computational Thinking	C	3
BG2801 Bioengineering Lab 2A	C	1
CY0001 Writing Across The Disciplines	C	3
ML0004 Career Design & Workplace Readiness in the V.U.C.A World	CC	2
CC0006 Sustainability: Society, Economy & Environment	CC	3
Tech-For-Good (T4G)	CSL	3

**24****Year 3 Semester 1**

Course	Type	AU
BG3102 Control in Biosystems	C	3
BG3104 Biomedical Imaging	C	3
BG3105 Biomedical Instrumentation	C	3
BG3112 Cardiovascular Engineering	C	3
BG3801 Bioengineering Lab 3	C	1
MLXXXX Professional Preparation	PS	1
DA Elective 1	BDE	3

**17****Year 4 Semester 1**

Course	Type	AU
BG4104 Machine Learning and Optimization for Bioengineers	C	3
BG4122 Medical Device Design	C	3
CH2010^ Engineering Statistics	MPE	3
CH4244 Numerical Methods and Data Analytics	BDE	3
IE4483 Artificial Intelligence & Data Mining	BDE	3
BC2406 Analytics I: Visual and Predictive Techniques	BDE	4

**19****Year 1 Semester 2**

Course	Type	AU
EG1001 Engineers in Society	C	2
CB1117^ Engineering Mathematics	C	4
CY1007 Climate Change	C	3
CC0015 Health & Wellbeing	CC	2

**Year 1 Special Term**

CY2003 Research Attachment 3 (Making and Tinkering)	C	4
— Overseas Learning Trip	—	—

**15****Year 2 Semester 2**

Course	Type	AU
BG2103 Signal Processing in Biosystems	C	3
BG2104 Electronics for Biomedical Engineering	C	3
BG2110 Bioelectricity	C	3
BG2209 Mechanics for Bioengineers	C	3
BG2802 Bioengineering Lab 2B	C	1
CB2002 Introduction to Chemical and Biological Safety	C	1
CY0002 Ethics	C	3
CY2001 Research Attachment 1	C	4
SP0061 Science & Technology for Humanity	CC	3

**24****Year 3 Semester 2**

Course	Type	AU
BG4211 CNYSP Overseas Final Year Project	C	8

**Year 3 Special Term**

BG3910 Professional Attachment	PS	5
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**13****Year 4 Semester 2**

Course	Type	AU
BG4122 Medical Device Design	C	3
CB0494 Introduction to Data Science and Artificial Intelligence	PS	3
BIE PE2	MPE	3
MH1403 Algorithms & Computing	BDE	3
EE4791 Database Systems	BDE	3
CB4246 Optimisation Using Artificial Intelligence	BDE	3

**18****Total (AU)****150**

^ These courses are double-counted towards both BIE as well as the Second Major in Data Analytics.