B.Eng (Hons) in Chemical and Biomolecular Engineering CNYang Scholars Programme with 2nd Major in Data Analytics

AY2025 - 2026 Intake onwards (CBDA 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)		
Chemical & Biomolecular Engineering (CNYang)	1	16 [4]	23		2				41
	2	26 [6]	10		8		3		47
	3	25				6		3	34
	4	8		6		3		19	36
	Total	75 [10]	33	6	10	9	3	22	158

Category			AU	Total AU
Interdisciplinary Collaborative Core (ICC)	**Common Core (CC)**			
	CC0006	Sustainability: Society, Economy & Environment	3	
	CC0015	Health & Wellbeing	2	10
	ML0004	Career Design & Workplace Readiness in the V.U.C.A World	2	
	SP0061	Science & Technology for Humanity	3	
	Professional Series (PS)			
	CB0494	Introduction to Data Science and Artificial	3	
	MLXXXX	Professional Preparation	1	9
	CH3910	Professional Attachment	5	
	Care, Service, Learn (CSL)			
		Tech-For-Good (T4G)	3	3
Major Requirement	**CBE Core**			
	EG1001	Engineers In Society	2	
	CB1102	Introduction to Chemical and Biomedical Engineering	1	
	CB1117^	Engineering Mathematics	4	
	CB1103	Organic Chemistry For Engineers	3	
	CB1131	Introduction to Biomolecular Engineering	3	
	CH1104	Materials & Energy Balance	3	
	CH2010^	Engineering Statistics	3	40
	CH2103	Fluid Systems	3	
	CH2107^	Introduction to Computational Thinking	3	
	CH2108	Thermodynamics	3	
	CH2112	Chemical Reaction Engineering	3	
	CH2114	Heat & Mass Transfer in Chemical and Biological Systems	3	
	CH2123	Chemical Thermodynamics	3	
	CH2151	Unit Operations: Fluid-Solid Separation	3	

	CH2802	Chemical & Biomolecular Engineering Laboratory	2	
	CH3104	Biochemical Engineering	3	
	CH3109	Decision Tools for Business & Engineering	3	
	CH3111	Process Control and Dynamics	3	
	CH3121	Chemical, Biological & Plant Safety	2	35
	CH3140	Unit Operations: Fluid-Fluid Separation	3	
	CH3802	Chemical & Biomolecular Engineering Laboratory 5	3	
	CH4211	CNYSP Overseas Final Year Project	8	
Major Requirement	CH4801	Final Year Design Project	8	
	CNYSP Core			
	CY0001	Writing Across the Disciplines	3	
	CY0002	Ethics	3	
	CY1001	Cell	3	
	CY1007	Climate Change	3	
	CY1101	Molecule	4	33
	CY1308	Physics	3	
	CY1500	Introduction to Research	2	
	CY1601	Mathematics I	4	
	CY2001	Research Attachment 1	4	
	CY2003	Research Attachment 3	4	
	CBE Major Prescribed Electives (MPE)			6

	Data Analytics Compulsory Courses		
	1) Linear Algebra: CB1117 Engineering	NA	
	2) Computing Skills: CH2107 Introduction to	NA	
	3) Probability and Statistics: CH2010 Engineering Statistics	NA	
	4) Algorithms: MH1403 Algorithms & Computing	3	
2nd Major in Data Analytics (BDEs)	5) Database: EE4791 Database Systems (3AU)	3	19
	6) Data Mining: IE4483 Artificial Intelligence & Data Mining	3	
	7) Data Visualisation/Management: BC2406	4	
	Electives		
	CH4244 Numerical Method and Data Analytics	3	
	CB4246 Optimisation Using Artificial Intelligence	3	
	Choose from the following:		
	EE4414 Machine Learning Design & Application (3AU)		
	EE4497 Pattern Recognition & Machine Learning (3AU)		
	MA4829 Machine Intelligence (3AU)	3	3
	MA4830 Real Time Software for Mechatronics System (3AU)		
	MA4832 Microprocessor System (3AU)		
	MS4671 Introduction to Materials Simulation (3AU)		

Total			**158**

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

B.Eng (Hons) in Chemical and Biomolecular Engineering CNYang Scholars Programme with 2nd Major in Data Analytics
AY2025 - 2026 Intake onwards (CBDA CNYSP)
with Professional Attachment

Year 1 Semester 1

Course		Type	AU
CB1102	Introduction to Chemical and Biomedical Engineering	C	1
CB1131	Introduction to Biomolecular Engineering	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 1 Semester 2

Course		Type	AU
CB1103	Organic Chemistry For Engineers	C	3
CB1117^	Engineering Mathematics	C	4
CH1104	Materials & Energy Balance	C	3
EG1001	Engineers in Society	C	2
CY1007	Climate Change	C	3
CC0015	Health & Wellbeing	CC	2

Year 1 Special Term

Course		Type	AU
CY2003	Research Attachment 3 (Making and Tinkering)		4
—	Overseas Learning Trip	—	—
			21

Year 2 Semester 1

Course		Type	AU
CH2103	Fluid Systems	C	3
CH2107^	Introduction to Computational Thinking	C	3
CH2108	Thermodynamics	C	3
CH2010^	Engineering Statistics	C	3
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
			23

Year 2 Semester 2

Course		Type	AU
CH2112	Chemical Reaction Engineering	C	3
CH2114	Heat & Mass Transfer in Chemical and Biological Systems	C	3
CH2123	Chemical Thermodynamics	C	3
CH2151	Unit Operations: Fluid-Solid Separation	C	3
CH2802	Chemical & Biomolecular Engineering Laboratory 2B	C	2
CY0002	Ethics	C	3
CY2001	Research Attachment 1	C	4
SP0061	Science & Technology for Humanity	CC	3
			24

Year 3 Semester 1

Course		Type	AU
CH3104	Biochemical Engineering	C	3
CH3109	Decision Tools for Business & Engineering	C	3
CH3111	Process Control and Dynamics	C	3
CH3121	Chemical, Biological & Plant Safety	C	2
CH3140	Unit Operations: Fluid-Fluid Separation	C	3
CH3802	Chemical & Biomolecular Engineering Laboratory 5	C	3
MLXXXX	Professional Preparation	PS	1
	DA Elective 1	BDE	3
			21

Year 3 Semester 2

Course		Type	AU
CH4211	CNYSP Overseas Final Year Project	C	8

Year 3 Special Term

Course		Type	AU
CH3910	Professional Attachment	PS	5
			13

Year 4 Semester 1

Course		Type	AU
CH4801	Final Year Design Project	C	4
	CBE PE1	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
			17

Year 4 Semester 2

Course		Type	AU
CH4801	Final Year Design Project	C	4
CB0494	Introduction to Data Science and Artificial Intelligence	PS	3
	CBE PE2	MPE	3
MH1403	Algorithms & Computing	BDE	3
EE4791	Database Systems	BDE	3
CB4246	Optimisation Using Artificial Intelligence	BDE	3
			19
	Total (AU)		**158**

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