

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

AY2024 - 2025 Intake onwards (CBDA CNYSP)

Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement			Interdisciplinary		Broadening and Deepening Electives (BDE)	Total
		School Core (C)	CNYang Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)		
Chemical & Biomolecular Engineering (CNYang)	1	16	23		5			44
	2	26	10		8			44
	3	25				5	3	33
	4	8		6		3	19	36
	Total	75	33	6	13	8	22	157

Category		AU	Total AU	
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)			
	CC0002 Navigating the Digital World	2	13	
	CC0005 Healthy Living & Wellbeing	3		
	CC0006 Sustainability: Society, Economy & Environment	3		
	SP0061 Science & Technology for Humanity	3		
	ML0004 Career and Entrepreneurial Development for the Future World	2		
	Foundational Core (College-level)			
	CB0494 Introduction to Data Science and Artificial	3	8	
	CH3910 Professional Attachment	5		
Major Requirement	CBE Core			
	EG1001	Engineers In Society	2	34
	CB1102	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	
	CH2103	Fluid Systems	3	
	CH2107^	Introduction to Computational Thinking	3	
	CH2108	Thermodynamics	3	
	CH2112	Chemical Reaction Engineering	3	
		Heat & Mass Transfer in Chemical and Biological		
	CH2114	Systems	3	

Major Requirement	CH2123	Chemical Thermodynamics	3	74	
	CH2151	Unit Operations A	3		
		Chemical & Biomolecular Engineering Laboratory			
	CH2802	2B	2		
	CH3104	Biochemical Engineering	3		
	CH3109	Decision Tools for Business & Engineering	3		
	CH3111	Process Control and Dynamics	3		
	CH3121	Chemical, Biological & Plant Safety	2		
	CH3140	Unit Operations B	3		
		Chemical & Biomolecular Engineering Laboratory			
	CH3802	5	3		
	CH4211	CNYSP Overseas Final Year Project	8		
	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		
	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		
2nd Major in Data Analytics (BDEs)	Data Analytics Compulsory Courses				
	1) Linear Algebra: CB1117 Engineering		NA		
	2) Computing Skills: CH2107 Introduction to Computational Thinking		NA		
	3) Probability and Statistics: CH2010 Engineering S		NA		
	4) Algorithms: MH1403 Algorithms & Computing		3		
	5) Database: EE4791 Database Systems (3AU)		3		
	6) Data Mining: EE4483 Artificial Intelligence & Data Mining		3		
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and Predictive Techniques		4		
	Electives				
	CH4244 Numerical Method and Data Analytics		3		
	Choose from the following:				
	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)	6	
Total			157

^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 Digital Analytics AY2024 - 2025 Intake onwards (CBDA CNYSP) <u>with Professional Attachment</u>					
Year 1 Semester 1				Year 1 Semester 2	
Course		Type	AU	Course	Type AU
CB1102	Introduction to Chemical and Biomedical Engineering	C	1	CB1103	Organic Chemistry For Engineers C 3
CB1131	Introduction to Biomolecular Engineering	C	3	CB1117 [^]	Engineering Mathematics C 4
CY1001	Cell	C	3	CH1104	Materials & Energy Balance C 3
CY1101	Molecule	C	4	EG1001	Engineers in Society C 2
CY1308	Physics	C	3	CY1007	Climate Change C 3
CY1500	Introduction to Research	C	2	CC0005	Healthy Living & Wellbeing CC 3
CY1601	Mathematics 1	C	4		
CC0002	Navigating the Digital World	CC	2		
			22		22
Year 2 Semester 1				Year 2 Semester 2	
Course		Type	AU	Course	Type AU
CH2103	Fluid Systems	C	3	CH2112	Chemical Reaction Engineering C 3
CH2107 [^]	Introduction to Computational Thinking	C	3	CH2114	Heat & Mass Transfer in Chemical and Biological Systems C 3
CH2108	Thermodynamics	C	3	CH2123	Chemical Thermodynamics C 3
CH2010 [^]	Engineering Statistics	C	3	CH2151	Unit Operations A C 3
CY0001	Writing Across The Disciplines	C	3	CH2802	Chemical & Biomolecular Engineering Laboratory 2B C 2
CC0006	Sustainability: Society, Economy & Environment	CC	3	CY0002	Ethics C 3
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	CY2001	Research Attachment 1 C 4
				SP0061	Science & Technology for Humanity CC 3
			20		24
Year 3 Semester 1				Year 3 Semester 2	
Course		Type	AU	Course	Type AU
CH3104	Biochemical Engineering	C	3	CH4211	CNYSP Overseas Final Year Project C 8
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 B	C	3		
CH3802	Chemical & Biomolecular Engineering Laboratory 5	C	3		
	DA Elective 1	BDE	3		
			20		13
Year 4 Semester 1				Year 4 Semester 2	
Course		Type	AU	Course	Type AU
CH4801	Final Year Design Project	C	4	CH4801	Final Year Design Project C 4
	CBE PE1	MPE	3	CB0494	Introduction to Data Science and Artificial Intelligence FC 3
CH4244	Numerical Methods and Data Analytics	BDE	3		CBE PE2 MPE 3
EE4483	Artificial Intelligence & Data Mining	BDE	3	MH1403	Algorithms & Computing BDE 3
BC2406	Analytics I: Visual and Predictive Techniques	BDE	4	EE4791	Database Systems BDE 3
					DA Elective 3 BDE 3
			17		19
				Total (AU)	157

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