

**AY2023-24 CURRICULUM FOR CHEMISTRY AND BIOLOGICAL CHEMISTRY
WITH CN YANG SCHOLARS PROGRAMME_Internship
SECOND MAJOR IN DATA ANALYTICS (CHDA)
(FIRST YEAR ADMISSION)**

Last Updated : 19-Apr-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSB-Core	MPE	CC	FC	BDE	Total AU
1	6	27	0	5	0	3	41
2	15	10	0	8	3	7	43
3	18	0	12	0	0	12	42
4	12	0	0	0	10	0	22
Total	51	37	12	13	13	22	148

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYSB Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
CC0002	Navigating the Digital World	CC	2	
			21	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007	Climate Change	CNY-Core	3	CNYSB Courses
CY1602^	Mathematics II	CNY-Core	4	
CM2031	Organic & Bioorganic Chemistry	C	3	Pre-req (CY1101 Molecule) fulfilled at the end of Y1S1
CM2041	Physical & Biophysical Chemistry 1	C	3	CY1101
EE4791	Database Systems	BDE	3	
			16	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYSB Course
	Overseas Learning Trip			
			4	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSB Course
CM2011	Analytical & Bioanalytical Chemistry	C	3	CY1101
CM2021	Inorganic & Bioinorganic Chemistry	C	3	CY1101
CM2061	Chemistry & Biological Chemistry Lab 1	C	3	CY1101
MH2500	Probability and Introduction to Statistics	BDE	4	CY1601
PS0001^	Introduction to Computational Thinking	C	3	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
			24	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2001	Research Attachment 1	CNY-Core	4	CNYSB Course 2-semester long, course registered only in Sem 2 (similar to URECA)
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSB Course
CM2062	Chemistry & Biological Chemistry Lab 2	C	3	CY1101
PS0002	Introduction to Data Science and Artificial Intelligence	FC	3	PS0001

MH1403	Algorithms and Computing	BDE	3	PS0001
CC0007	Science & Technology for Humanity	CC	3	
			19	

YEAR 3 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CM3011	Chemical Spectroscopy & Applications	C	3	CM2021 & CM2031
CM3041	Physical & Biophysical Chemistry 2	C	3	CM2041
CM3062	Chemistry & Biological Chemistry Lab 4	C	3	CM2062
CM4043 [^] OR CM4044 [^]	Molecular Modelling: Principles and Applications OR Artificial Intelligence in Chemistry	MPE	3	CM3041 OR PS0001 & PS0002
CM4XXX	School Major PE	MPE	3	
SC4020	Data Analytics & Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	PS0001 & MH2500
			21	

YEAR 3 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CM3021	Organometallic Chemistry	C	3	CM2021
CM3031	Organic Reaction Mechanism & Synthesis	C	3	CM2031
CM3061	Chemistry & Biological Chemistry Lab 3	C	3	CM2061
CM4XXX	School Major PE	MPE	3	
CM4XXX	School Major PE	MPE	3	
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
			21	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CM4111	Overseas Final Year Project	C	12	CNYSF Course
			12	

YEAR 4 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CM4081	Professional Internship	FC	10	
			10	

Total AU for Graduation : **148**

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

Compulsory Courses for Second Major in Data Analytics

Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	MH2500	Probability and Introduction to Statistics	4	1	CY1601
Core	CY1602	Mathematics II	4	2	CY1601
Core	PS0001	Introduction to Computational Thinking	3	1	-
BDE	MH1403	Algorithms and Computing	3	2	PS0001
BDE	EE4791	Database Systems	3	2	-
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	SC4024	Data Visualization	3	1	PS0001 & MH2500

Electives for Second Major in Data Analytics

Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
MPE	CM4043	Molecular Modelling: Principles and Applications	3	1	CM3041
MPE	CM4044	Artificial Intelligence in Chemistry	3	1	PS0001 & PS0002
BDE	XXXXXX	DA Elective 2	3		
BDE	XXXXXX	DA Elective 3	3		

List of Eligible Electives can be found at the following link: <https://www.ntu.edu.sg/engineering/admissions/ug/allprogrammes/highlights/da>