AY2023-24 CURRICULUM FOR BIOLOGICAL SCIENCES
WITH CN YANG SCHOLARS PROGRAMME_Internship
SECOND MAJOR IN DATA ANALYTICS (BSDA)
(FIRST YEAR ADMISSION)

Last Updated :   19-Apr-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	15	27	0	5	0	0	47
2	15	10	0	8	3	7	43
3	0	0	6	0	10	12	28
4	12	0	9	0	0	3	24
Total	42	37	15	13	13	22	142

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYSP Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
BS1016	Physiology	C	3	
SP0061	Science & Technology for Humanity	CC	3	
			22	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007	Climate Change	CNY-Core	3	CNYSP Course
CY1602^	Mathematics II	CNY-Core	4	CNYSP Course Mutually exclusive with MH2802
BS1005	Biochemistry I	C	3	
BS1006	Principles of Genetics	C	3	
BS1007	Molecular and Cell Biology I	C	3	
BS1009^	Introduction to Computational Thinking	C	3	
CC0002	Navigating the Digital World	CC	2	
			21	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Course
BS2002	Microbiology	C	3	
BS2003	Biochemistry II	C	3	BS1005
BS0004	Introduction to Data Science	FC	3	BS1008 + BS1009
MH2500	Probability & Introduction to Statistics	BDE	4	CY1601
BS2028	Biophysical Methods Applied to Biological Sciences	C	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
			21	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks

CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course	
CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course	
BS1100	Molecular and Cell Biology Techniques Level 1	C	3		
BS2004	Molecular and Cell Biology II	C	3	New Core BS1007	
MH1403	Algorithms and Computing	BDE	3	BS1009	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3		
CC0006	Sustainability: Human, Social, Economics & Environment	CC	3		
			22		

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BS4017^	High-Throughput Bioinformatics	MPE	3	BS1009
BSXXXX	School Major PE (choose from Table B)	MPE	3	
SC2207	Introduction to Database	BDE	3	MH1403
SC4020	Data Analytics and Mining	BDE	3	MH1404
SC4024	Data Visualization	BDE	3	BS1009 & MH2500
XXXXXX	DA Elective 1	BDE	3	
			18	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BS4227	Professional Internship	FC	10	
			10	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY4111	Overseas Final Year Project	C	12	CNYSP Course
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BS3008^	Computer Aided Drug Discovery	MPE	3	BS1002/CY1101/BS1012
BSXXXX	School Major PE (choose from Table A)	MPE	3	
BSXXXX	School Major PE (choose from Table A)	MPE	3	
XXXXXX	DA Elective 2	BDE	3	
			12	
	Total AU for Graduation :		**142**	

Notes:

^ These courses can be double-counted to fulfil the requirements of Core and the Second Major in Data Analytics.

2nd major students are allowed to double count up to 12AU of Core and MPE to fulfill the 2nd major.

Total 2nd major in DA AU to be fulfill = 32AU

Compulsory Courses for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	MH2500	Probability & Introduction to Statistics	4	1	CY1601
Core	CY1602	Mathematics II	4	1	CY1601
Core	BS1009	Introduction to Computational Thinking	3	2	-
BDE	MH1403	Algorithms and Computing	3	2	BS1009
BDE	SC2207	Introduction to Database	3	1,2	MH1403
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	SC4024	Data Visualization	3	1	BS1009 & MH2500
		TOTAL	23		

Electives for Second Major in Data Analytics (choose at least 3) = 9AU					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
MPE	BS3008*	Computer Aided Drug Discovery	3	2	BS1002/CY1101

MPE	BS4017*	High-Throughput Bioinformatics	3	1	BS1009
BDE	SC4002*	Natural Language Processing	3	1	MH1403
BDE	SC4021*	Information Retrieval	3	2	MH1403
BDE	SC4022*	Network Science	3	2	MH1403

* highly recommended courses

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