

**CURRICULUM FOR BACHELOR OF SCIENCE (PURE PHYSICS)  
WITH SECOND MAJOR IN DATA ANALYTICS  
CN YANG SCHOLARS PROGRAMME  
(FIRST YEAR ADMISSION)  
AY2025 Intake Onwards**

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Core	CNYSP-Core	MPE	CC	Professional Series	Care, Serve & Learn	BDE	Total AU
1	10	27 [4]	0	4	0	0	3	44 [4]
2	18	6	0	6	3	3	8	44
3	13	0	9	0	1	0	21	44
4	12	0	0	0	10	0	0	22
<b>Total</b>	<b>53</b>	<b>33 [4]</b>	<b>9</b>	<b>10</b>	<b>14</b>	<b>3</b>	<b>32</b>	<b>154 [4]</b>

[ ] AU of courses that could be used to fulfil Core requirement and second major requirement concurrently

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY1001	Cell	CNYSP-Core	3	
CY1101	Molecule	CNYSP-Core	4	
CY1308	Physics	CNYSP-Core	3	
CY1500	Introduction to Research	CNYSP-Core	2	
CY1601	Mathematics I	CNYSP-Core	4	
PS0001	Introduction to Computational Thinking	C	3	
PH1198	Physics Laboratory Ia	C	2	
CC0015	Health & Wellbeing	CC	2	
			<b>23</b>	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY1007	Climate Change	CNYSP-Core	3	
CY1602^	Mathematics II	CNYSP-Core	4	
PH1107	Relativity and Quantum Physics	C	3	
PH1199	Physics Laboratory Ib	C	2	
MH1403	Algorithms and Computing	BDE	3	PS0001
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
			<b>17</b>	

YEAR 1 SPECIAL TERM				
Course Code	Course Title	Type	AU	Remarks
CY2003	Research Attachment 3 (Making and Tinkering)	CNYSP-Core	4	
	Overseas Learning Trip			
			<b>4</b>	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY0001	Writing Across The Disciplines	CNYSP-Core	3	
PH5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
PH2102	Electromagnetism	C	4	CY1308 + CY1601 + CY1602
PH2103	Thermal Physics	C	4	CY1308 + CY1601 + CY1602
PH2198	Physics Lab IIa	C	2	PH1198
PH1105	Optics, Vibrations and Waves	C	3	
MH2500	Probability & Introduction to Statistics	BDE	4	CY1601
	Tech-For-Good	CSL	3	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
			<b>26</b>	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY0002	Ethics	CNYSP-Core	3	
PH5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
PH2101	Quantum Mechanics I	C	3	PH1107 + CY1601 + CY1602
PH2199	Physics Lab IIb	C	2	PH1199
PS0002	Introduction to Data Science and Artificial Intelligence	PS	3	PS0001

SP0061	Science & Technology for Humanity	CC	3	
			18	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
PH2104	Analytical Mechanics	C	4	CY1308 + CY1601 + CY1602
PH3101	Quantum Mechanics II	C	4	PH2101 + MH2801
PH3103	Technological Applications of Quantum Mechanics	C	3	
PH4XXX	School Major PE	MPE	3	
XXXXXX	DA Elective 1	BDE	3	
SC4020	Data Analytics & Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	PS0001 + MH2500
MLXXXX	Profession Preparation	PS	1	
			24	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
PH3199	Physics Laboratory IIIa	C	2	PH2198 + PH2199
PH4XXX	School Major PE	MPE	3	
PH4XXX	School Major PE	MPE	3	
MH3511	Data Analysis with Computer	BDE	3	MH2500
SC2207	Introduction to Database	BDE	3	MH1403
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
			20	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
PH4111	Overseas Final Year Project	C	12	
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
PH4420	Professional Internship	PS	10	
			10	
Total AUs required for Graduation:			154	

^ These courses are double-counted towards both PHY 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 & Introduction to Statistics	4	1	CY1601
Core	CY1602	Mathematics II	4	1	CY1601
BDE	MH3511	Data Analysis with Computer	3	2	MH2500
BDE	MH1403	Algorithms and Computing	3	2	PS0001
BDE	SC2207	Introduction to Database	3	1,2	MH1403
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	SC4024	Data Visualization	3	1	PS0001 & MH2500

Suggested Electives for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	SC4002	Natural Language Processing	3	1	MH1403
BDE	SC4021	Information Retrieval	3	2	MH1403
BDE	SC4022	Network Science	3	2	MH1403

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2	21	6	0	6	3	3	8	47
3	9	0	9	0	1	0	21	40
4	12	0	0	0	10	0	0	22
<b>Total</b>	<b>52</b>	<b>33 [4]</b>	<b>9</b>	<b>10</b>	<b>14</b>	<b>3</b>	<b>32</b>	<b>153 [4]</b>

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PH2101	Quantum Mechanics I	C	3	PH1107 + CY1601 + CY1602
PH2199	Physics Lab IIb	C	2	PH1199

PH2301	Physical Optics	C	3	
PS0002	Introduction to Data Science and Artificial Intelligence	PS	3	PS0001
SP0061	Science & Technology for Humanity	CC	3	
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Core	CY1602	Mathematics II	4	1	CY1601
BDE	MH3511	Data Analysis with Computer	3	2	MH2500
BDE	MH1403	Algorithms and Computing	3	2	PS0001
BDE	SC2207	Introduction to Database	3	1,2	MH1403
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	SC4024	Data Visualization	3	1	PS0001 & MH2500

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BDE	SC4021	Information Retrieval	3	2	MH1403
BDE	SC4022	Network Science	3	2	MH1403