

CURRICULUM (AY2025-26 Onwards)
ENVIRONMENTAL EARTH SYSTEMS SCIENCE WITH SECOND MAJOR IN DATA ANALYTICS
(ECOLOGY)
CN YANG SCHOLARS PROGRAMME

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Core	CNYSP- Core	MPE	CC	Professional Series	Care, Serve, Learn	BDE	Total AU
1	12	27 [4]	0	7	0	0	0	46 [4]
2	23 [4]	6	0	3	0	3	10	45 [4]
3	10	0	0	0	4	0	19	33
4	12	0	0	0	10	0	0	22
Total	57 [4]	33 [4]	0	10	14	3	29	146 [8]

[] 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	
ES1001	E2S2 Environment and Society			C	4	
					20	

YEAR 1 SEMESTER 2						
Course Code	Course Title			Type	AU	Remarks
CY1007	Climate Change			CNYSP-Core	3	
CY1602^	Mathematics II			CNYSP-Core	4	
ES1003	E2S2 Solid Earth			C	4	
ES2003	E2S2 Biosphere			C	4	
CC0006	Sustainability: Society, Economy & Environment			CC	3	
CC0015	Health & Wellbeing			CC	2	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World			CC	2	
					22	

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

YEAR 2 SEMESTER 1						
Course Code	Course Title			Type	AU	Remarks
CY0001	Writing Across The Disciplines			CNYSP-Core	3	
ES5915	Undergraduate Research			BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
ES1006	Introductory Field Experience			C	4	Y1ST complete, Y2S1 register
ES2001^	Computational Earth Systems Science			C	4	
ES2802	GIS and the Earth System			C	3	ES1003 + ES2001
	Tech-For-Good			CSL	3	Replaces Care, Serve and Learn
SP0061	Science & Technology for Humanity			CC	3	
XXXXXX	DA Elective 1			BDE	3	
					23	

YEAR 2 SEMESTER 2						
Course Code	Course Title			Type	AU	Remarks
CY0002	Ethics			CNYSP-Core	3	
ES5915	Undergraduate Research			BDE	4	2-semester long, course registered only in Sem 2
ES0001	Physical Environments of Singapore			C	3	
ES2301	Principles of Heredity and Ecological Genetics			C	3	ES2003 + CY1101
ES2303	Introduction to Ecology			C	3	CY1001 + ES2003
ES4907	Introductory Statistics and Numerical Thinking			C	3	
MH1403	Algorithms and Computing			BDE	3	

		22	
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YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
ES3307	Experimental Design & Analysis	C	4	
MLxxxx	Profession Preparation	PS	1	
MH2500	Probability and Introduction to Statistics	BDE	4	CY1601
SC2207	Introduction to Database	BDE	3	MH1403
SC4020	Data Analytics & Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	
			18	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
ES3301	Plant and Animal Physiology	C	3	
ES3302	Tropical Ecology	C	3	
ES0002	Fundamentals of Data Science for Earth and Environmental Systems Science	PS	3	
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
			15	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
ES4111	Overseas Final Year Project	C	12	CNYSP Course
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
ES4003	Professional Internship	PS	10	
			10	
Total AUs required for Graduation:			146	

^ These courses are double-counted towards both EESS 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	2	CY1601
Core	ES2001	Computational Earth Systems Science	4	1	CY1601
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

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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ENVIRONMENTAL EARTH SYSTEMS SCIENCE WITH SECOND MAJOR IN DATA ANALYTICS
(GEOSCIENCES)
CN YANG SCHOLARS PROGRAMME

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Core	CNYSP-Core	MPE	CC	Professional Series	Care, Serve, Learn	BDE	Total AU
1	12	27 [4]	0	7	0	0	0	46 [4]
2	20 [4]	6	0	3	0	3	10	42 [4]
3	9	0	0	0	4	0	19	32
4	17	0	0	0	10	0	0	27
Total	58 [4]	33 [4]	0	10	14	3	29	147 [8]

[] 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	
ES1001	E2S2 Environment and Society		C	4	
				20	

YEAR 1 SEMESTER 2					
Course Code	Course Title		Type	AU	Remarks
CY1007	Climate Change		CNYSP-Core	3	
CY1602^	Mathematics II		CNYSP-Core	4	
ES1003	E2S2 Solid Earth		C	4	
ES2003	E2S2 Biosphere		C	4	
CC0006	Sustainability: Society, Economy & Environment		CC	3	
CC0015	Health & Wellbeing		CC	2	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World		CC	2	
				22	

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

YEAR 2 SEMESTER 1					
Course Code	Course Title		Type	AU	Remarks
CY0001	Writing Across The Disciplines		CNYSP-Core	3	
ES5915	Undergraduate Research		BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
ES1006	Introductory Field Experience		C	4	Y1ST complete, Y2S1 register
ES2001^	Computational Earth Systems Science		C	4	
ES2802	GIS and the Earth System		C	3	ES1003 + ES2001
	Tech-For-Good		CSL	3	Replaces Care, Serve and Learn
SP0061	Science & Technology for Humanity		CC	3	
XXXXXX	DA Elective 1		BDE	3	
				23	

YEAR 2 SEMESTER 2					
Course Code	Course Title		Type	AU	Remarks
CY0002	Ethics		CNYSP-Core	3	
ES5915	Undergraduate Research		BDE	4	2-semester long, course registered only in Sem 2

ES0001	Physical Environments of Singapore	C	3	
ES2002	Earth Materials	C	3	ES1003
ES2004	Sedimentary Geology	C	3	ES1003
MH1403	Algorithms and Computing	BDE	3	
			19	

YEAR 3 SEMESTER 1

Course Code	Course Title	Type	AU	Remarks
ES3003	Introduction to Geochemistry	C	3	
MLxxxx	Profession Preparation	PS	1	
MH2500	Probability and Introduction to Statistics	BDE	4	CY1601
SC2207	Introduction to Database	BDE	3	MH1403
SC4020	Data Analytics & Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	
			17	

YEAR 3 SEMESTER 2

Course Code	Course Title	Type	AU	Remarks
ES3002	Structural Geology and Tectonics	C	3	ES1003
ES3004	Introduction to Geophysics	C	3	ES1003
ES0002	Fundamentals of Data Science for Earth and Environmental	PS	3	
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
			15	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1

Course Code	Course Title	Type	AU	Remarks
ES3005	Advanced Field Course in Geology	C	5	
ES4111	Overseas Final Year Project	C	12	CNYSP Course
			17	

YEAR 4 SEMESTER 2

Course Code	Course Title	Type	AU	Remarks
ES4003	Professional Internship	PS	10	
			10	
Total AUs required for Graduation:				147

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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	2	CY1601
Core	ES2001	Computational Earth Systems Science	4	1	CY1601
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

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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ENVIRONMENTAL EARTH SYSTEMS SCIENCE WITH SECOND MAJOR IN DATA ANALYTICS
(SOCIETY AND THE EARTH SYSTEM)
CN YANG SCHOLARS PROGRAMME

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Year of Study	Core	CNYSP- Core	MPE	CC	Professional Series	Care, Serve, Learn	BDE	Total AU
1	12	27 [4]	0	7	0	0	0	46 [4]
2	23 [4]	6	0	3	0	3	10	45 [4]
3	9	0	0	0	4	0	19	32
4	12	0	0	0	10	0	0	22
Total	56 [4]	33 [4]	0	10	14	3	29	145 [8]

[] 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		
ES1001	E2S2 Environment and Society	C	4		
			20		

YEAR 1 SEMESTER 2					
Course Code	Course Title	Type	AU	Remarks	
CY1007	Climate Change	CNYSP-Core	3		
CY1602^	Mathematics II	CNYSP-Core	4		
ES1003	E2S2 Solid Earth	C	4		
ES2003	E2S2 Biosphere	C	4		
CC0006	Sustainability: Society, Economy & Environment	CC	3		
CC0015	Health & Wellbeing	CC	2		
ML0004	Career Design & Workplace Readiness in the V.U.C.A	CC	2		
			22		

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

YEAR 2 SEMESTER 1					
Course Code	Course Title	Type	AU	Remarks	
CY0001	Writing Across The Disciplines	CNYSP-Core	3		
ES5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2	
ES1006	Introductory Field Experience	C	4	Y1ST complete, Y2S1 register	
ES2001^	Computational Earth Systems Science	C	4		
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	Tech-For-Good	CSL	3	Replaces Care, Serve and Learn	
SP0061	Science & Technology for Humanity	CC	3		
XXXXXX	DA Elective 1	BDE	3		
			23		

YEAR 2 SEMESTER 2					
Course Code	Course Title	Type	AU	Remarks	
CY0002	Ethics	CNYSP-Core	3		

ES5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
ES0001	Physical Environments of Singapore	C	3	
ES2203	Global Environmental Politics and Governance	C	3	ES1001, ES2003
ES2303	Introduction to Ecology	C	3	CY1001, ES2003
ES4907	Introductory Statistics and Numerical Thinking	C	3	
MH1403	Algorithms and Computing	BDE	3	
			22	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
ES3202	Resilient Urban Systems	C	3	
HE5091	Principles of Economics	C	3	
MLxxxx	Profession Preparation	PS	1	
MH2500	Probability and Introduction to Statistics	BDE	4	CY1601
SC2207	Introduction to Database	BDE	3	MH1403
SC4020	Data Analytics & Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	
			20	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
ES3201	Coupled Human and Natural Systems	C	3	ES1001
ES0002	Fundamentals of Data Science for Earth and	PS	3	
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
			12	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
ES4111	Overseas Final Year Project	C	12	CNYSP Course
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
ES4003	Professional Internship	PS	10	
			10	
Total AUs required for Graduation:				145

^ These courses are double-counted towards both EESS 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	2	CY1601
Core	ES2001	Computational Earth Systems Science	4	1	CY1601
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

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