

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (ECOLOGY AND ECOSYSTEMS)
WITH CN YANG SCHOLARS PROGRAMME_Internship
SECOND MAJOR IN SUSTAINABILITY (ESSN)
(FIRST YEAR ADMISSION)**

Last Updated : 11-Oct-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	16	27	0	5	0	0	48
2	21	10	0	8	0	3	42
3	10	0	0	0	3	18	31
4	15	0	0	0	10	0	25
Total	62	37	0	13	13	21	146

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	
ES1001	E2S2 Environment and Society	C	4	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			23	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	CNYSP Course Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYSP Course
ES1003	E2S2 Solid Earth	C	4	
ES2003	E2S2 Biosphere	C	4	
CC0002	Navigating the Digital World	CC	2	
			17	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYSP Course
ES1006	Introductory Field Experience	C	4	ES1001
	Overseas Learning Trip			
			8	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course
ES2001	Computational Earth Systems Science	C	4	CY1601
ES2802	GIS and the Earth System	C	3	ES1003 + ES2001
ES2304	Microbes on Natural Ecosystems	C	3	CY1001
CC0006	Sustainability: Human, Social, Economics & Environment	CC	3	
	Second Major Compulsory Course 2	BDE	3	
			19	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Course
CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course 2-semester long, course registered only in Sem 2 (similar to URECA)
ES2301	Principles of Heredity and Ecological Genetics	C	3	ES2003 + CY1101
ES2303^	Introduction to Ecology	C	3	CY1001 + ES2003
ES0001	Physical Environments of Singapore	C	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
SP0061	Science & Technology for Humanity	CC	3	
			21	

YEAR 2 SPECIAL SEMESTER

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES2302	Introduction to Field Ecology	C	2	ES2003
			2	

YEAR 3 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
BS1008	Bioinformatics and Statistics	C	3	
ES3307	Experimental Design & Analysis	C	4	BS1001, MH3511
	Second Major Compulsory Course 3	BDE	3	
	Second Major Compulsory Course 4	BDE	3	
	SN Elective 1	BDE	3	List of electives to choose from
			16	

YEAR 3 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES3301	Plant and Animal Physiology	C	3	CY1001 + ES2003 + ES2301
ES0002	Fundamentals of Data Science for Earth and Environmental Systems Science	FC	3	CY1601, ES2001
	Second Major Compulsory Course 5	BDE	3	
	SN Elective 2	BDE	3	List of electives to choose from
	Second Major Interdisciplinary Project	BDE	3	
			15	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES4301 [^]	Conservation Biology and Biodiversity	C	3	AAB20D + ES2301 + ES3301
ES4111	Overseas Final Year Project	C	12	CNYSF Course
			15	

YEAR 4 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
	Attachment/Internship (10 weeks)	FC	10	
			10	

Total AU for Graduation : **146**

[^] These courses are double-counted towards both EESS as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability

https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (GEOSCIENCES)
WITH CN YANG SCHOLARS PROGRAMME_Internship
SECOND MAJOR IN SUSTAINABILITY (ESSN)
(FIRST YEAR ADMISSION)**

Last Updated : 11-Oct-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYS Core	MPE	CC	FC	BDE	Total AU
1	16	27	0	5	0	0	48
2	16	10	0	8	0	6	40
3	9	0	0	0	3	21	33
4	17	0	0	0	10	0	27
Total	58	37	0	13	13	27	148

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYS Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
ES1001	E2S2 Environment and Society	C	4	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			23	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	CNYS Course Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYS Course
ES1003	E2S2 Solid Earth	C	4	
ES2003	E2S2 Biosphere	C	4	
CC0002	Navigating the Digital World	CC	2	
			17	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYS Course
ES1006	Introductory Field Experience	C	4	ES1001
	Overseas Learning Trip			
			8	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYS Course
ES2001	Computational Earth Systems Science	C	4	CY1601
ES2802	GIS and the Earth System	C	3	
CC0006	Sustainability: Human, Social, Economics & Environment	CC	3	
	Second Major Compulsory Course 2	BDE	3	
	Second Major Compulsory Course 3	BDE	3	
			19	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYS Course
CY2001	Research Attachment 1	CNY-Core	4	CNYS Course 2-semester long, course registered only in Sem 2 (similar to URECA)
ES2002	Earth Materials	C	3	ES1003
ES2004	Sedimentary Geology	C	3	ES1003
ES0001	Physical Environments of Singapore	C	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
SP0061	Science & Technology for Humanity	CC	3	
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES3003	Introduction to Geochemistry	C	3	ES1003
	Second Major Compulsory Course 4	BDE	3	
	Second Major Compulsory Course 5	BDE	3	
	SN Elective 1	BDE	3	
	SN Elective 2	BDE	3	
			15	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/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 Systems Science	FC	3	CY1601, ES2001
	SN Elective 3	BDE	3	
	SN Elective 4	BDE	3	
	Second Major Interdisciplinary Project	BDE	3	
			18	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES3005	Advanced Field Course in Geology	C	5	ES2002, ES2004, ES2101, ES3002
ES4111	Overseas Final Year Project	C	12	CNYS Course
			17	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
	Attachment/Internship (10 weeks)	FC	10	
			10	

Total AU for Graduation : **148**

^ These courses are double-counted towards both EESS as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability

https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00

**AY2024-25 CURRICULUM FOR ENVIRONMENTAL EARTH SYSTEMS SCIENCE (SOCIETY AND THE EARTH SYSTEM)
WITH CN YANG SCHOLARS PROGRAMME_ Internship
SECOND MAJOR IN SUSTAINABILITY (ESSN)
(FIRST YEAR ADMISSION)**

Last Updated : 11-Oct-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	16	27	0	5	0	0	48
2	22	10	0	8	0	0	40
3	9	0	0	0	3	18	30
4	12	0	0	0	10	0	22
Total	59	37	0	13	13	18	140

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	
ES1001	E2S2 Environment and Society	C	4	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			23	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	CNYSP Course Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYSP Course
ES1003	E2S2 Solid Earth	C	4	
ES2003	E2S2 Biosphere	C	4	
CC0002	Navigating the Digital World	CC	2	
			17	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYSP Course
ES1006	Introductory Field Experience	C	4	ES1001
	Overseas Learning Trip			
			8	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course
ES2001	Computational Earth Systems Science	C	4	CY1601
ES2802	GIS and the Earth System	C	3	
HE5091^	Principles of Economics	C	3	Double-counted as Profit Core
CC0006	Sustainability: Human, Social, Economics & Environment	CC	3	
			16	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Course
CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course 2-semester long, course registered only in Sem 2 (similar to URECA)
ES2201^	Law & Economics, Sustainable Development and Environmental Protection	C	3	Can be double-counted as SN Elective ES1001, ES2003
ES2202^	Global Environmental Politics and Governance	C	3	Can be double-counted as SN Elective
ES2303^	Introduction to Ecology	C	3	CY1001, ES2003 Can be double-counted as SN Elective

ES0001	Physical Environments of Singapore	C	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
SP0061	Science & Technology for Humanity	CC	3	
			24	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES3202^	Resilient Urban Systems	C	3	ES2802 Can be double-counted as SN Elective
	Second Major Compulsory Course 3	BDE	3	
	Second Major Compulsory Course 4	BDE	3	
	SN Elective 1	BDE	3	
	SN Elective 2	BDE	3	
			15	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES3201^	Coupled Human and Natural Systems	C	3	ES1001 Can be double-counted as SN Elective
ES0002	Fundamentals of Data Science for Earth and Environmental Systems Science	FC	3	CY1601, ES2001
MH3511	Data Analysis with Computer	C	3	MH2500/BS1008
	Second Major Compulsory Course 5	BDE	3	
	Second Major Interdisciplinary Project	BDE	3	
			15	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
ES4111	Overseas Final Year Project	C	12	CNYS Course
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
	Attachment/Internship (20-weeks)	FC	10	
			10	

Total AU for Graduation : **140**

^ These courses can be double-counted (max 12AUs) towards both EESS as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability

https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00