

**Curriculum for students admitted in AY2021 onwards – Ecology Specialisation**

<b>Major Core</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>AUs</b>
ES0001	The Physical Environments of Singapore	3
ES0138	Introduction to Scientific Writing	2
ES1001	E2S2 Environment and Society	4
ES1003	E2S2 Solid Earth	4
ES1006	Introductory Field Experience	4
ES1007	Climate Change	3
ES2001	Computational Earth Systems Science	4
ES2003	E2S2 Biosphere	4
ES2802	GIS and the Earth System	3
MH1802	Calculus for the Sciences	4

<b>Additional Major Core</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>AUs</b>
BS1001	Introductory Biology	3
BS1008	Bioinformatics and Statistics	3
CM1001	Foundations of Chemistry I	4
ES2301	Principles of Heredity and Ecological Genetics	3
ES2302	Introduction to Field Ecology	2
ES2303	Introduction to Ecology	3
ES2304	Microbes on Natural Ecosystem	3
ES3301	Plant and Animal Physiology	3
ES3307	Experimental Design & Analysis	4
ES4301	Conservation Biology and Biodiversity	3

Students will take all the Major Core and Additional Major Core courses listed

<b>Major PE</b>		
<b>Course Code</b>	<b>Course Title</b>	<b>AUs</b>
CM1002	Foundations of Chemistry II	4
CM2011	Analytical and Bioanalytical Chemistry	3
ES2002	Earth Materials	3
ES2004	Sedimentary Geology	3
ES2005	Geology of Earthquakes	3
ES2201	Law & Economics, Sustainable Development, and Environmental Protection	3
ES2202	Global Environmental Politics and Governance	3
ES2801	Introduction to Natural Hazards	3
ES3002	Structural Geology and Tectonics	3
ES3003	Introduction to Geochemistry	3
ES3004	Introduction to Geophysics	3
ES3005	Advanced Field Course in Geology	5
ES3008	E2S2 Research	3
ES3101	Petroleum Geology	3

ES3102	Global Tectonics	3
ES3103	Sea-level Rise & Coastal Processes	3
ES3201	Coupled Human and Natural Systems	3
ES3202	Resilient Urban Systems	3
ES3302	Tropical Ecology	3
ES3303	Environmental Biotechnology	3
ES3304	Advanced Placement in Ecology and Society	2
ES3305	Current Issues in Ecology	3
ES3306	Global Change Ecology	3
ES3801	Biogeochemistry	3
ES4002	Final Year Project	10
ES4003	Professional Internship	10
ES4004	Overseas Entrepreneurship Prog (12-month)	20
ES4006	Overseas Entrepreneurship Prog (6-month)	11
ES4010	Teaching in E2S2	4
ES4201	Environmental Management and Valuation	3
ES4303	Marine and Aquatic Ecology	3
ES4901	Oceanography	3
ES4902	Geophysical Data Analysis	3
ES4904	Volcanology	3
ES4911	Seismology	3
MH2500	Probability and Introduction to Statistics	4
MH3511	Data Analytics with Computer	3
PH1104	Mechanics	3
PH1105	Optics, Vibrations and Waves	3
PH1106	Electricity and Magnetism	3
PH1107	Relativity and Quantum Physics	3
PH1801	Foundation of Physics I	3
PH1802	Foundation of Physics II	3

Students from Ecology specialization will choose 21 AUs from the Major-PE.

### ICC (University Level)

Courses	No of AU	Semester
Inquiry and Communication in an Interdisciplinary World	2	Year 1 Sem 1
Ethics & Civics in a Multi-Cultural World	2	Year 1 Sem 1
Navigating the Digital World	2	Year 1 Sem 2
Healthy Living & Mental Wellbeing	3	Year 1 Sem 2
Career & Entrepreneurial Development for the Future World	2	Year 2 Sem 2
Science & Technology for Humanity	3	Year 2 Sem 1
Sustainability: Human, Social, Economic & Environment	3	Year 2 Sem 1
<b>Total AU</b>	<b>17</b>	

### ICC (College Level)

Courses	No of AU	Semester
Fundamentals of Data Science for Earth and Environmental Systems Science	3	Year 3 Sem 2
Communication course	2	Year 3
Professional Attachment	5	Year 4
<b>Total AU</b>	<b>10</b>	

Programme Title	Year of Study	Number of Academic Units (AUs)					Total
		Major Requirement		Interdisciplinary Collaborative Core		Broadening and Deepening Electives	
		Core	Major Prescribed Electives	Common Core	Foundational Core		
Environmental Earth System Science (Ecology specialisation)	1	28		9			37
	2	20	7	8			35
	3	11	10		5	10	36
	4	7	4		5	11	27
	<b>Total</b>	<b>66</b>	<b>21</b>	<b>17</b>	<b>10</b>	<b>21</b>	<b>135</b>

**Proposed timetable for students in EESS Ecology Specialisation (AY21-22 onwards)**

	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
<b>Year 1 Semester 1</b>	ES0138	Introduction to Scientific Writing	Core	2
	BS1001	Introductory Biology	Core	3
	ES1001	E2S2 Environment and Society	Core	4
	MH1802	Calculus for the Sciences	Core	4
	CM1001	Foundations of Chemistry I	Core	4
	CC0001	Inquiry and Communication in an Interdisciplinary World	ICC	2
	CC0003	Ethics & Civics in a Multi-Cultural World	ICC	2
	Total AUs			<b>21</b>

	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
<b>Year 1 Semester 2</b>	ES1003	E2S2 Solid Earth	Core	4
	ES1007	Climate Change	Core	3
	ES2003	E2S2 Biosphere	Core	4
	CC0002	Navigating the Digital World	ICC	2
	CC0005	Healthy Living & Mental Wellbeing	ICC	3
		Total AUs		

	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
<b>Year 2 Semester 1</b>	ES1006	Introductory Field Experience	Core	4
	ES2001	Computational Earth Systems Science	Core	4
	ES2802	GIS and the Earth System	Core	3
	CC0006	Sustainability: Human, Social, Economic & Environment	ICC	3
	CC0007	Science & Technology for Humanity	ICC	3
		Total AUs		

	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
<b>Year 2 Semester 2</b>	ES0001	The Physical Environments of Singapore	Core	3
	ES2301*	Principles of Heredity and Ecological Genetics	Core	3
	ES2303	Introduction to Ecology	Core	3
	ML0004	Career & Entrepreneurial Development for the Future World	ICC	2
	XXX	MAJOR PE	MPE	3
	XXX	MAJOR PE	Major PE	4
		Total AUs		

	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
<b>Year 3 Semester 1</b>	ES2302	Introduction to Field Ecology	Core	2
	ES2304	Microbes on Natural Ecosystem	Core	3
	BS1008	Bioinformatics and Statistics	Core	3
	XXX	MAJOR PE	Major PE	3
	XXX	MAJOR PE	Major PE	4
	XXX	Broadening Elective	BE	3
		Total AUs		

<b>Year 3 Semester 2</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
	ES3301*	Plant and Animal Physiology	Core	3
	ICC	Second Communication Course	ICC	2
	ES0002	Fundamentals of Data Science for Earth and Environmental Systems Science	ICC	3
	MH3511	Data Analysis with Computer (pre-req for ES3307)	Major PE	3
	XXX	Broadening Elective	BE	3
	XXX	Broadening Elective	BE	4
				Total AUs

<b>Year 4 Semester 1</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
	ES3307	Experimental Design & Analysis	Core	4
	ES4301	Conservation Biology and Biodiversity	Core	3
	XXX	MAJOR PE	Major PE	4
	XXX	Broadening Elective	BE	3
	XXX	Broadening Elective	BE	4
			Total AUs	<b>18</b>

<b>Year 4 Semester 2</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Type</b>	<b>AU</b>
	ICC	Professional Attachment	ICC	5
	XXX	Broadening Elective	BE	4
			Total AUs	<b>9</b>