

## Graduation Requirements for AY16/17

### Environmental Biology

Summary of Requirements	MCs
UNIVERSITY LEVEL REQUIREMENTS	20
General Education	5 Pillars: <ul style="list-style-type: none"><li>• Quantitative Reasoning (GER1000)</li><li>• Asking Questions (GEQ1000)</li><li>• Human Cultures (GEH)</li><li>• Singapore Studies (GES)</li><li>• Thinking and Expression (GET)</li></ul>
UNRESTRICTED ELECTIVES	23-24
PROGRAMME REQUIREMENTS	116-117
<b>TOTAL</b>	<b>160</b>

### Environmental Geography

Summary of Requirements	MCs
UNIVERSITY LEVEL REQUIREMENTS	20
General Education	5 Pillars: <ul style="list-style-type: none"><li>• Quantitative Reasoning (GER1000)</li><li>• Asking Questions (GEQ1000)</li><li>• Human Cultures (GEH)</li><li>• Singapore Studies (GES)</li><li>• Thinking and Expression (GET)</li></ul>
UNRESTRICTED ELECTIVES	18-19
PROGRAMME REQUIREMENTS	121-122
<b>TOTAL</b>	<b>160</b>

**Programme Requirements for Bachelor of Environmental Studies  
(For Cohorts AY16/17 and After)  
Environmental Biology Specialisation**

Level	Programme Requirements	Cumulative MCs
1000	CM1402 General Chemistry EC1301 Principles of Economics ENV1101 Environmental Studies: An Interdisciplinary Overview ESE1001/ESE 1001 FC Environmental Engineering Fundamentals GE1101E Geographical Journeys: Exploring World Environments MA1312 Calculus with Applications ST1232 Statistics to Life Sciences ENV1202 Communications for Environmental Studies	<b>32</b>
2000	ENV2101 Global Environmental Change ENV2102 Environmental Law ENV2103 The Environment and Public Health LSM2252 Biodiversity  <u>Choose 3 modules from the following list:</u> ESE2401 Water Science & Technology GE 2101 Methods and Practices in Geography GE2215 Introduction to GIS and Remote Sensing Methods GE2220 Terrestrial and Coastal Environment GE2221 Nature and Society GE2228 Weather and Climate GE2229 Water and the Environment GE2230 Energy Futures: Environment and Sustainability HY2235 Environmental History LSM2251 Ecology & Environment PH2216 <sup>^</sup> Environmental Philosophy PH 2226 Concept of Nature in Inquiry RE2701 Urban Planning SC2221 Environment & Society  <i><sup>^</sup>Students have the choice to read both PH 2216 and PH 2226. However, only 4 MC can satisfy the programme requirements. The other 4 MC will count towards Unrestricted Elective.</i>	<b>60</b>
3000	ENV3101 Environmental Challenges: Asian Case Studies I ENV3102 Environmental Challenges: Asian Case Studies II ENV3103 Environmental Economics  <u>Choose any 3 of the following modules with not more than 1 module from List A:</u> LSM3252 Evolution and Comparative Genomics LSM3254 Ecology of Aquatic Environments LSM3255 Ecology of Terrestrial Environments LSM3256 Tropical Horticulture LSM3257 Quantitative Methods for Ecological Research LSM3262 Environmental Animal Physiology LSM3263 Field Studies in Neotropical Ecosystems LSM3265 Entomology LSM3266 Avian Biology and Evolution LSM3267 Behavioural Biology	<b>84</b>

	<p>LSM3288/LSM3289 Advanced UROPS in Life Sciences I/II or ENV3202 Environmental Studies Internship Programme (4 MC)* List A modules<sup>#</sup></p> <p>* Students have the choice to read both Internship and LSM3288/LSM3289. However, only 4 MC can satisfy the programme requirements. The other 4 (if student reads LSM3288 and internship) or 8 (if student reads LSM3288 and LSM3289, as well as Internship) MC will count towards Unrestricted Electives.</p>	
4000	<p>LSM4199 Honours Project (16 MC) ENV4101 Environmental Management in Singapore</p> <p><u>Choose any 3 of the following modules with not more than 1 module from List B:</u> LSM4254 Principles of Taxonomy and Systematics LSM4255 Methods in Mathematical Biology <b>LSM4257 Aquatic Vertebrate Diversity (new)</b> LSM4261 Marine Biology LSM4262 Tropical Conservation Biology LSM4263 Field Studies in Biodiversity LSM4264 Freshwater Biology LSM4265 Urban Ecology LSM4267 Animal Communications &amp; Sensory Ecology List B modules<sup>#</sup></p>	116-117

Students who choose to read modules in Lists A and B must ensure that they have the necessary prerequisites.

<p><b>List A:</b> GE3210 Natural Resources: Policy and Practice GE3216 Applications of GIS and Remote Sensing GE3221 Ecological Systems GE3223 Environmental Changes in the Tropics GE3227 Urban Climates GE3231 Natural Hazards GE3233 Environmental Research Methods GE3238: GIS Design and Practices GE3239 Environmental Sustainability GE3242 Sediments and Sedimentary Basins GE3243 Applied Petroleum GE3244 Fundamentals of Petroleum Exploration GE3246 Environmental Pollution EC3384 Resource and Energy Economics I XD3103 Planet Earth ESE3101 Solid and Hazardous Waste Management ESE3201 Air Quality Management ESE3301 Environmental Microbiological Principles ESE3401 Waste and Wastewater Engineering 1 PF3302 Energy Management AR2723 Strategies for Sustainable Architecture</p>	<p><b>List B:</b> GE4207 Coastal Management (5 MC) GE4211 Advanced Hydrology and Water Resources Management (5 MC) GE4212 Environmental Modelling (5 MC) GE4214 Remote Sensing of Environment (5 MC) GE4219 Development and Environment in Southeast Asia (5 MC) GE4220 Field Investigation in Physical Geography (5 MC) GE4222 Advanced Geomorphology (5 MC) GE4223 Development of Geographical Thought (5 MC) GE4224 Applied Biogeography (5 MC) GE4227 Climate Change: Processes, Impact and Responses (5 MC) GE4229 Earth Systems Science (5 MC) GE4880 Topics in Geography (5 MC) CE4231 Earth's Climate: Science &amp; Modelling ESE4301 Wastewater Biotechnology ESE4401 Water &amp; Wastewater Engineering 2 ESE4402 Treatment Plant Hydraulics</p>
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**Programme Requirements for Bachelor of Environmental Studies  
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Level	Programme Requirements	Cumulative MCs
1000	CM1402 General Chemistry EC1301 Principles of Economics ENV1101 Environmental Studies: An Interdisciplinary Overview ESE1001/ESE 1001 FC Environmental Engineering Fundamentals GE1101E Geographical Journeys: Exploring World Environments MA1312 Calculus with Applications ST1232 Statistics to Life Sciences ENV1202 Communications for Environmental Studies	<b>32</b>
2000	ENV2101 Global Environmental Change ENV2102 Environmental Law ENV2103 The Environment and Public Health LSM2252 Biodiversity  <u>Choose 3 modules from the following list:</u> ESE2401 Water Science & Technology GE2101 Methods and Practices in Geography GE2215 Introduction to GIS and Remote Sensing Methods GE2220 Terrestrial and Coastal Environment GE2221 Nature and Society GE2228 Weather and Climate GE2229 Water and the Environment GE2230 Energy Futures: Environment and Sustainability HY2235 Environmental History LSM2251 Ecology & Environment PH2216 <sup>^</sup> Environmental Philosophy PH 2226 Concept of Nature in Inquiry RE2701 Urban Planning SC2221 Environment & Society  <i><sup>^</sup>Students have the choice to read both PH 2216 and PH 2226. However, only 4 MC can satisfy the programme requirements. The other 4 MC will count towards Unrestricted Elective.</i>	<b>60</b>
3000	ENV3101 Environmental Challenges: Asian Case Studies I ENV3102 Environmental Challenges: Asian Case Studies II ENV3103 Environmental Economics GE3240 Geographical Research: Developing Ideas  <u>Choose any 3 of the following modules with not more than 1 module from List C:</u> GE3210 Natural Resources: Policy and Practice GE3216 Applications of GIS and Remote Sensing GE3221 Ecological Systems GE3223 Environmental Changes in the Tropics GE3227 Urban Climates GE3230A Field Studies in Geography: Southeast Asia (8 MC) <sup>†</sup> GE3231 Natural Hazards GE3233 Environmental Research Methods GE3238 GIS Design and Practices GE3239 Environmental Sustainability	<b>88</b>

	<p>GE3242 Sediments and Sedimentary Basins          GE3243 Applied Petroleum Exploration          GE3244 Fundamentals of Petroleum Exploration          GE3246 Environmental Pollution          EC3384 Resource and Energy Economics I          XD3103 Planet Earth          GE3551 FASS UROP <u>or</u>          ENV3202 Environmental Studies Internship Programme (4 MC) *          List C modules#</p> <p>† If students read GE3230A, they will be deemed to have fulfilled 2 out of the 3 modules.          * Students have the choice to read both internship and GE3551. However, only 4 MC can satisfy the programme requirement. The other 4 MC will count towards Unrestricted Electives.</p>	
4000	<p>GE4401 Honours Thesis (15 MC)          ENV4101 Environmental Management in Singapore</p> <p><u>Choose any 3 of the following modules with not more than 1 module from List D:</u>          GE4207 Coastal Management (5 MC)          GE4211 Advanced Hydrology and Water Resources Management (5 MC)          GE4212 Environmental Modelling (5 MC)          GE4214 Remote Sensing of Environment (5 MC)          GE4219 Development and Environment in Southeast Asia (5 MC)          GE4220 Field Investigation in Physical Geography (5 MC)          GE4222 Advanced Geomorphology (5 MC)          GE4223 Development of Geographical Thought (5 MC)          GE4224 Applied Biogeography (5 MC)          GE4227 Climate Change: Processes, Impact and Responses (5 MC)          GE4229 Earth Systems Science (5 MC)          GE4880 Topics in Geography (5 MC)          List D modules#</p>	121 - 122

Students who choose to read modules in Lists A and B must ensure that they have the necessary prerequisites.

**List C:**

LSM3252 Evolution and Comparative Genomics  
 LSM3254 Ecology of Aquatic Environments  
 LSM3255 Ecology of Terrestrial Environments  
 LSM3256 Tropical Horticulture  
 LSM3257 Quantitative Methods for Ecological Research  
 LSM3262 Environmental Animal Physiology  
 LSM3263 Field Studies in Neotropical Ecosystems  
 LSM3265 Entomology  
 LSM3266 Avian Biology and Evolution  
 LSM3267 Behavioural Biology  
 ESE3101 Solid and Hazardous Waste Management  
 ESE3201 Air Quality Management  
 ESE3301 Environmental Microbiological Principles  
 ESE3401 Waste and Wastewater Engineering 1  
 PF3302 Energy Management  
 AR2723 Strategies for Sustainable Architecture

**List D:**

LSM4254 Principles of Taxonomy and Systematics  
 LSM4255 Methods in Mathematical Biology  
 LSM4257 Aquatic Vertebrate Diversity (new)  
 LSM4261 Marine Biology  
 LSM4262 Tropical Conservation Biology  
 LSM4263 Field Studies in Biodiversity  
 LSM4264 Freshwater Biology  
 LSM4265 Urban Ecology  
 LSM4267 Animal Communications & Sensory Ecology  
 CE4231 Earth's Climate: Science and Modelling  
 ESE4301 Wastewater Biotechnology  
 ESE4401 Water & Wastewater Engineering 2  
 ESE4402 Treatment Plant Hydraulics