

## BIODIVERSITY IN SRI LANKA

Intercollegiate Sri Lanka Education Program (ISLE) Program

**Suggested US semester credit hours:** 4

**IFSA-Butler Course Code:** ENV282-03 and BIV282-03

**Delivery method:** Face to Face

**Language of Instruction:** English

### ATTENDANCE

Students studying on an IFSA-Butler program are required to attend all regularly scheduled classes, studios, recitations, workshops and laboratory sessions. Failure to attend classes may result in a loss of credit and a fail on your transcript. The specific application of the attendance guidelines is at the instructor’s discretion. Lateness or absence can affect the student’s grade.

### COURSE OUTLINE

Session	Topics	Readings, Viewings
1	Introduction to biological diversity in Sri Lanka	<ul style="list-style-type: none"> <li>• Biogeography in space and time (breakup of Gondwana to rise of the Himalayas).</li> <li>• Wallace’s Ceylonese Biogeographic region.</li> <li>• Patterns of BD distribution in the island: natural ecosystems, floristic zones and bioregions of Sri Lanka.</li> </ul>
2	Ecological values (services and goods) of Biodiversity	<ul style="list-style-type: none"> <li>• Ecosystem services (non-tangible services): provision of fresh water, soil and water conservation, regulation of dry weather flow, habouring pollinators, biocontrol agents etc. of value to man, amelioration of environment, aesthetic (recreational) and educational value.</li> <li>• Provision of bio-resources (tangible services): food, fuel, fiber, wood and cane construction material, medicines, ornamental species of commercial value.</li> </ul>
3	Traditional religio-cultural values on biodiversity conservation.	<ul style="list-style-type: none"> <li>• Environmental ethics in Asian philosophies and deep ecology.</li> </ul>
4	Human impact on biodiversity (prehistoric, colonial to current) in Sri Lanka	<ul style="list-style-type: none"> <li>• Habitat destruction, fragmentation and degradation resulting from pre-historic, colonial to current land use changes.</li> </ul>

**COURSE SYLLABUS**

		<ul style="list-style-type: none"> <li>• Human population increase, pollution, invasive species, climate change</li> </ul>
5	Kandy to Horton Plains	<ul style="list-style-type: none"> <li>• Geographic and climatic variation.</li> <li>• Ecosystem diversity in time and space.</li> <li>• Central highlands World Heritage status</li> </ul>
<p><b>Oral power-point presentation on Horton Plains</b>  Each student will submit, two topics of relevance to the course that interested you most on the Horton Plains field visit. From the two topics submitted by each of you, the instructor/s will select one and request you to prepare a 15 min. oral presentation, followed by a 05 min. discussion. The selection would be made to reduce any major overlaps among the presentations.</p>		
6	Environmental economics	<ul style="list-style-type: none"> <li>• Market failures (why markets fail to allocate natural resources efficiently)</li> <li>• Reasons for market failure with emphasis on biodiversity conservation.</li> <li>• Total economic value (use and non-use values).</li> <li>• Economic valuation of biodiversity in context of Sri Lanka.</li> <li>• Payments for environmental services and bio-prospecting.</li> </ul>
7	Environmental economics: Site visit group work	<ul style="list-style-type: none"> <li>• Use and non-use values associated with the site and its resources.</li> <li>• Assess the type(s) of ecosystem(s) present in that location.</li> <li>• The current extent of built infrastructure, the ownership status of the land in which the human activities and ecosystems are located.</li> <li>• Any current or historic conditions or dynamics in the area that are likely to affect any proposed projects in future.</li> </ul>
8	Environmental economics: Lecture / discussion	<ul style="list-style-type: none"> <li>• Review of why valuation is done and when it is useful</li> <li>• What it can be used for in both public policy and private sector applications, e.g., project decision making, sustainability reporting, etc.</li> <li>• Illustrative examples will be used from various sectors to demonstrate real life applications of environmental valuation.</li> </ul>

**COURSE SYLLABUS**

9	Threats to biodiversity - natural extinctions	<ul style="list-style-type: none"> <li>• Post Cambrian mass extinctions and background rates of extinctions.</li> <li>• Human caused extinctions (early Pleistocene to now).</li> <li>• Ecological correlates of current extinctions.</li> </ul>
10	In-Situ Conservation of Biodiversity in Sri Lanka	<ul style="list-style-type: none"> <li>• Early traditional: mountain ranges &amp; lowland hills as catchments, araniyas-meditation groves.</li> <li>• Colonial: game parks, enactments on conservation of mountain catchments.</li> <li>• Current: network of protected areas:</li> <li>• International: Ramsar sites, World Heritage Sites, MAB reserves, International Bird Areas.</li> <li>• National: Wildlife reserves and Forest reserves.</li> </ul> <p><b>International treaties related to conservation:</b></p> <ul style="list-style-type: none"> <li>• Convention on Biodiversity (CBD).</li> <li>• United Nations Framework Convention on Climate Change (UNFCCC).</li> <li>• Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).</li> <li>• UNESCO-Man and Biosphere Program (MAB).</li> </ul> <p><b>Conservation facilitators:</b></p> <ul style="list-style-type: none"> <li>• IUCN red listing.</li> <li>• Conservation International (CI).</li> </ul>
<p><b>Field trip to Knuckles Range</b>            Kandyan spice/home gardens, lower montane natural forests under-planted with cardamom, tea plantation, abandoned tea given way to grasslands, riverine forest patches, Pitawala pathana carpet grassland, dry semi-deciduous forest. Ecotourism effort with local participation.</p>		
11	Ex-situ conservation of Biodiversity	<ul style="list-style-type: none"> <li>• Temple gardens, home gardens, spice gardens.</li> <li>• Crop germplasm gardens.</li> <li>• Plant Genetic Resources Centre.</li> <li>• National Botanic Gardens Network &amp; National Herbarium.</li> <li>• v. National Zoological Gardens, Elephant orphanages.</li> </ul>

**COURSE SYLLABUS**

<p><b>12</b></p>	<p>Sri Lanka’s indigenous (traditional) rice-paddy agro-ecosystems vs. modern high through-put irrigated agro-ecosystems: management, services and human well-being</p>	<ul style="list-style-type: none"> <li>• Culture and Agriculture in Sri Lanka.</li> <li>• Paddy cultivation and different ecosystems.</li> <li>• Traditional irrigation and paddy cultivation.</li> <li>• Traditional labour exchange patterns and cultural capital formation.</li> <li>• Traditional pest control methods: labour intensive farming methods vs. capital extensive farming systems.</li> </ul>
<p><b>13</b></p>	<p>Rehabilitation &amp; restoration ecology</p>	<ul style="list-style-type: none"> <li>• Bringing back natural forests: concepts and principles.</li> <li>• Reduction of carbon foot print (total amount of GHG produced due to one's activities over a given period of time).</li> <li>• Adaptation strategies to climate change (CC) (establishing connectivity between reserves, wild life corridors, building resilience to CC, etc.).</li> </ul>
<p><b>Student presentations on Horton Plains.</b></p>		

Please note: The field sites given in this Course Schedule are tentative and may be subject to change.

**ACADEMIC INTEGRITY**

Any academic endeavor must be based upon a foundation of honesty and integrity. Students are expected to abide by principles of academic integrity and must be willing to bear individual responsibility for their work while studying abroad. Any academic work (written or otherwise) submitted to fulfill an academic requirement must represent a student’s original work. Any act of academic misconduct, such as cheating, fabrication, forgery, plagiarism, or facilitating academic dishonesty, will subject a student to disciplinary action.

IFSA-Butler takes academic integrity very seriously. Students must not accept outside assistance without permission from the instructor. Additionally, students must document all sources according to the instructions of the professor. Should your instructor suspect you of plagiarism, cheating, or other forms of academic dishonesty, you may receive a failing grade for the course and disciplinary action may result. The incident will be reported to the IFSA-Butler resident director as well as your home institution.

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