

## SEMESTER II

### LSM4265 URBAN ECOLOGY

**Prerequisite: LSM2251 and LSM3255**

**Workload: 26 lecture hours + 24 practical hours**

This module introduces students to the ecology of urban areas, i.e., environments in which urbanisation is the key ecological factor. Topics covered include: urbanisation (definition and process), urban land use, urban ecology as a field of study (and its main paradigms), urban environments and ecosystem function, urban biodiversity (plants and animals), individual- and population-level consequences of urbanisation, social dimensions of urban conservation, ecological footprints and the concept of the sustainable city. Where possible, examples from tropical cities in general, and Southeast Asia in particular, are used. But it must be stressed that urban ecology overall lacks studies from the tropics, so much of the material comes from lessons learned in the temperate zone. Students carry out a small-group research project in which they design, implement, analyse and present an urban ecology study. Below is a *TENTATIVE* schedule of topics.

S/N	Topics	Lecture hours
1	Urban ecology as a field of study, urbanisation (definition, process, forms and historical and current trends, characteristics of cities, urban land use	2
2	Urban land use, habitat fragmentation, the urban environment and ecosystem function, including pollution (air, water and hydrology, soil, climate, noise, light, roads)	2
3		2
4		2
5	Urban plants (establishment, presence of non-natives, tree cover, distribution patterns)	2
6	Urban animals (establishment, presence of non-natives, distribution patterns, specific threats to wildlife)	2
7		2
8	Urban biodiversity (schemes to classify species), biotic homogenisation, impacts of urbanisation on biodiversity, urban hotspots,	2
9	Urbanisation-related changes at levels of the population and the individual (phenology, life history, physiology, behaviour, genetic)	2
10	Urbanisation and disease (humans and wildlife)	2
11	Social dimensions of urban conservation (nature deficit disorder, human-wildlife interactions)	2
12	Mitigation strategies to combat the impacts of urbanisation (e.g., pollution and fragmentation, urban greening, urban sprawl vs densification)	2
13	The Singapore story, research gaps in urban ecology	2
<b>Total lectures :</b>		<b>26h</b>
<b>Tutorials:</b>		<b>24h</b>
<b>Total hours:</b>		<b>50h</b>

**TEXT BOOK** (Reference books): a reading list will be provided.

**MODE OF ASSESSMENT:** 60% continuous assessment (group project, participation), 40% closed-book exam.

**MODULE CO-ORDINATOR:**

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