

All information is subject to change

CDE4501A Topics in Challenges of Cities: Future Nature-based Urban Innovations

Course Overview: *Unofficial and amended from AY2023/24 + current materials.*

One of the most salient urban issues that cities are facing is the climate crisis. Through excursions, topical themes, and case study analysis, we will examine how to develop climate resiliency through blue-green infrastructure. Students will examine how the balance between water, nature, and urbanisation plays a vital role in a city's liveability to develop and evaluate their own nature-based solutions. This course explores future urban issues faced by evolving cities and encourages students to rediscover natural infrastructure to connect conceptions of the "inside and outside", biodiversity ecosystems, and co-existence with nature.

Course Learning Objectives: *Unofficial and amended from AY2023/24 + current materials.*

- Basic understanding on natural water systems in regard to regenerative, resilient, balancing and life supporting qualities
- The essential role of water systems on urban climate, biodiversity, health and quality of life.
- Examine how to balance natural systems within the environment with urban development
- Planting methods and the current technical options like a systemic toolbox for a future-oriented regenerative urban hydrology.
- Contemporary involvement and citizen participation and how to do it.
- Understand what is needed for successful strategic implementation of measures, including available resources, capital, and long-term maintenance.

Course Leaders:

Herbert Dreiseitl – Visiting Professor, NUS Cities; Founder and CEO of DREISEITLconsulting

Veera Sekaran – Professor, Office of the President, NUS; Founder of Greenology

Teaching Assistant

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Course Schedule

Lecture Venue: SDE3-LT423 | **Studio Venue:** E4-04-03

Time: Every Wednesday, 9:00am – 12:00pm

Date	Schedule
Week 1 14 August	Course Introduction Introduction to Future Nature-Based Innovation and Course
Week 2 21 August	Lecture 1 Basics on Challenges of Cities: Future Nature-based Urban Innovations – Part 1, What does Nature Based Solution mean?
Week 3 28 August	Lecture 2 and Panel Discussion Basics on Challenges of Cities: Future Nature-based Urban Innovations – Part 2, What urbanism signifies today and in the future? Guest Lecture: Discovering Waterways and Planning for the Future
Week 4 4 September	Field Trip Walking tour with URA to visit Sembawang & Simpang
Week 5 11 September	Studio Field Trip Reflection Roundtable and Preliminary Proposal Development
Week 6 18 September	Lecture 4 & Studio Work Introduction to Urban Greening and Urban Farming Part I
Week 7 2 October	Lecture 5 & Studio Work Guest Lecture
Week 8 9 October	Lecture 6 and Panel Discussion Guest Lecture: Climate Adaptation, Sustainable Development and Water Resilience
Week 9 16 October	Lecture 6 & Demonstration Urban Greening and Farming Techniques and Strategies Part II Water Experiment Demonstration
Week 10 23 October	Lecture 7 and Panel Discussion Guest Lecture
Week 11 30 October	Lecture 8 and Panel Discussion Guest Lecture Reflection Exercise
Week 12 6 November	Studio Studio Work & Consultations
Week 13 13 November	Studio Final Presentations

Studio Project

Using Sembawang and Simpang as sites of interest, students will work in teams to develop nature-based innovations within the site. The focus will be on integrating waterway typologies, underdeveloped terrain, nature, housing, and city development together to address how to balance urbanisation with liveability. The project will examine four topics:

Industrial Heritage and Coastal Protection

- Coastal Ecosystems, Climate resilience, marine conservation, preservation, restoration, cultural significance

Heritage and Landscape Protection

- Historical preservation, cultural landscapes, restoration projects, environmental sustainability, green belts, land use planning

HDB Housing and ABC Landscapes

- Urban development, urban planning, community living, blue-green infrastructure, water management, biodiversity enhancement

Future Living Within Nature

- Circular economy, urban farming, smart and liveable cities, landscape harmony, environmental stewardship