

CDE2503 Cities in Nature

(AY 24/25 Semester 2)

Updated as of 25 November 2024

Course Overview

Cities in Nature focuses on the Sustainable Environment outcome of the Liveability Framework. Where Liveable Cities serves as the core foundation module for students to appreciate cities as complex systems presenting a wide range of seemingly simple problems/issues but requiring integrated systems thinking to achieve a holistic outcome, Cities in Nature delves deeper into the Sustainable Environment aspect of liveability.

Problems and issues investigated and discussed are geared towards Singapore's vision of a City in Nature and how increasingly, many cities around the world are facing environmental crises and disasters. Sustainability is the focus here with an emphasis on the environment, something which is often neglected or rendered secondary in the backdrop of economic growth and development. Students will learn from experienced practitioners from government and industry on the opportunities and challenges faced by cities in this backdrop. The course will cover the themes of Climate Resilience and the Sustainable Use of Limited Resources, touching on specific issues such as coastal protection, urban heat, energy resilience and water conservation.

Students will learn to appreciate how difficult it is to tackle urban issues, balancing the needs of various stakeholders while minimising the adverse impacts that development often has on the environment. They will get the chance to experience hands-on learning through a studio project that will see them apply the ideas they have learnt to a real-world case study in Singapore. They will also be guided by practitioners from the Maritime Port Authority (MPA) in their studio project, as the students draw inspiration from The Waves, a building project by MPA which aims to be net-zero energy and prepared for sea level rise.

Course Learning Outcomes

1. Understand key principles taught within the themes of Climate Resilience and the Use of Limited Resources that shapes the development of a sustainable and climate resilient city.
2. Identify problem(s) that prevents a city from achieving the Sustainable Environment outcome of the LF.
3. Formulate solution(s) using key principles highlighted in the two broad themes of Climate Resilience and the Use of Limited Resources to address problem(s) identified.

Course Leaders

Mr. Wong Kai Yeng, Adjunct Professor, NUS Cities; Former Group Director, URA
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Dr. He Xiaogang, Assistant Professor, Department of Civil and Environmental Engineering, CDE, NUS (hexg@nus.edu.sg)

Teaching Assistants

Luo Yilu, PhD Scholar, NUS Cities (e1374438@u.nus.edu)

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Course Schedule

Lecture Venue: LT422, SDE3 | **Studio Venue:** E4-04-02, E4-04-03

Time: Seminars (2 hrs) [Mondays, 10 am - 12 pm] | Studios (3 hrs) [Mondays, 9 am-12 pm | 2 pm – 5 pm]

WEEK	Seminars Studios
1	[13 JANUARY 2025] SEMINAR 1 <i>Theme 1 (Climate Resilience)</i> <ul style="list-style-type: none">• Introduction to the course
2	[20 JANUARY 2025] SEMINAR 2 <i>Theme 1 (Climate Resilience)</i> <ul style="list-style-type: none">• Flood Mitigation, Sea-Level Rise and Coastal Protection
3	[27 JANUARY 2025] STUDIO 1 1 st Consultation Studio
4	[3 FEBRUARY 2025] SEMINAR 3 <i>Theme 1 (Climate Resilience)</i> <ul style="list-style-type: none">• Urban Heat Island and Greening as Climate Adaptation Strategy
5	[10 FEBRUARY 2025] STUDIO 2 1 st Presentation Studio
6	[17 FEBRUARY 2025] STUDIO 3 2 nd Consultation studio
RECESS WEEK	
7	[3 MARCH 2025] SEMINAR 4 <i>Theme 2 (Use of Limited Resources)</i> <ul style="list-style-type: none">• Food resilience: How to achieve food security for Singapore?

8	[10 MARCH 2025] STUDIO 4 2 nd Presentation studio
9	[17 MARCH 2025] SEMINAR 5 Theme 2 (Use of Limited Resources) <ul style="list-style-type: none"> • Circular Economy: How do we achieve Zero Waste?
10	[24 MARCH 2025] SEMINAR 6 Theme 2 (Use of Limited Resources) <ul style="list-style-type: none"> • Water Conservation: Is water still a scarce resource?
11	[31 MARCH 2025] HARI RAYA PUASA HOLIDAY NO STUDIO
12	[7 APRIL 2025] SEMINAR 7 Theme 2 (Use of Limited Resources) <ul style="list-style-type: none"> • Energy Resilience: Sustainable Sources of Energy
13	[14 APRIL 2025] STUDIO 5 Final presentation

**The course schedule is tentative and subjected to final changes if any.*

Course Assessment

1. **Seminar Attendance [10%]**
2. **Studio Project [60%]**
 - a. Individual (15%)
 - i. Studio Attendance (5%)
 - ii. Participation (10%)
 - b. Group (45%) – Oral presentation with slides
3. **2 Quizzes in total (10% each) [20%]**
4. **Active Participation during seminar discussion and presentation studios (inclusive of Peer Review) [10%]**

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