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Urban Resilience and Adaptation for India and Mongolia:
curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
619050-EPP-1-2020-1-DE-EPPKA2-CBHE-JP

URBAN ECOLOGY

Course introduction

BACKGROUND:

Urban Resilience and Adaptation for India and Mongolia:
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- Хотын ландшафт дэлхийн хэмжээнд хурдацтай тэлж, хүн амын 50 гаруй хувь нь хотод амьдарч байна.
- Хүн амын суурьшлын дийлэнх хэсэг нь биологийн төрөл зүйл ихтэй бүс нутагт оршдог тул дэлхийн хурдацтай хотжилт нь дэлхийн биологийн төрөл зүйлд хүчтэй нөлөө үзүүлж байна.

SYLLABUS

Urban Resilience and Adaptation for India and Mongolia:
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Course name:	Urban ecology
Course index:	ECOL-827
Target group:	Master
Course type	Major course
Number of credits:	3 ECTS
Period:	Fall/Spring /Autumn semester

OBJECTIVES:

Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
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• The ***aim of the course*** is to train to ability to create nature-based solutions to support the development of sustainable environmental management strategies in cities.

Course objectives:

- To introduce the concepts and theories of ecology in urban context;
- To explain the principles and strategies for bio-diversity conservation and management for sustainable urban development;
- To impart the knowledge on evaluating the environmental and social impacts of urban development;
- Provide knowledge and skills to evaluate urban ecosystem services;
- Develop systematic thinking about the city.Introduce strategies dealing with global challenges of climate change in cities;
- Develop a systemic thinking of cities.

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COURSE WORKLOAD

- 32 in class hours:
  - 22 (15-20) teaching /lecture/
  - 10 (10-15) exercise /experiment/

- 60 home activities:
  - 10 hours exercise, quiz
  - 20 hours self-study
  - 30 hours mini project

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THE AUTHENTIC TASKS

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The course consists of 4 main parts. It includes:

- ***Basic issues of urban ecology:*** Human-nature relationship, urbanization and sustainable urban development, urban ecology, nature-based smart city
- ***Urban ecosystem:*** urban climate, urban air quality issues, urban hydrology and water quality issues, urban soil and soil pollution and ways to reduce it, urban plant and animal ecology, urban afforestation and forest protection issues
- ***Urban Ecosystem Services:*** Types of ecosystem services and their assessment, urban greening services, waste management and waste recycling methods, urban public health issues, urban landscape design and landscape in urban planning
- ***Urban ecology and adaptation:*** Ecosystem-based adaptation, urban planning and urban nature-based solutions.

TEACHING METHODS: Four quadrant approach of e-Learning

I	II
e-Tutorial: Video and Audio Content in an organized form, Animation, Simulations, video demonstrations, Virtual Labs, etc, along with the transcription of the video.	**e-Content:** self instructional material, e-books, illustrations, case studies, presentations etc, web resources such as further references, related links, open source content on internet, video, case studies, books including e-books, research papers & journals, articles, etc.
III	**IV**
Discussion forum for raising of doubts and clarifying them on a near real time basis by the Course Coordinator or his team.	**Assessment:** Problems and solutions, which could be in the form of multiple choice questions, fill in the blanks, matching questions, short answer questions, long answer questions, quizzes, assignments and solutions.

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GRADING:

- ***Participation (20%):*** Participation in e-learning and in discussions
- ***Formative assessment (50%):***
  - *~Exercise (20%):* students have to complete the quiz or exercise of each topic.
  - *~Homework (20%):* Development of the project proposal within the selected topic
- ***Final examination (30%)*** Test consisting of exercises and tasks in framework urban ecology content

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LITERATURE: Compulsory

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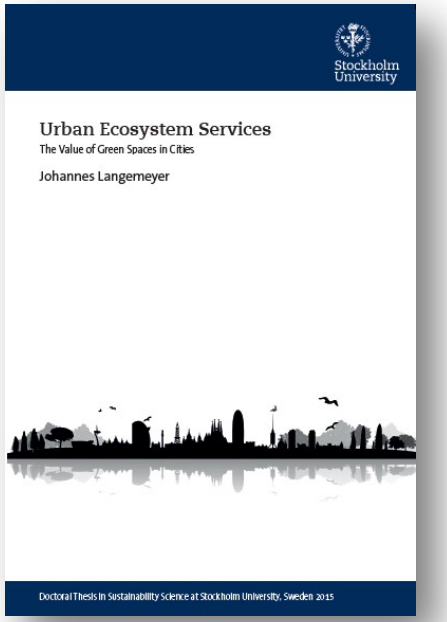
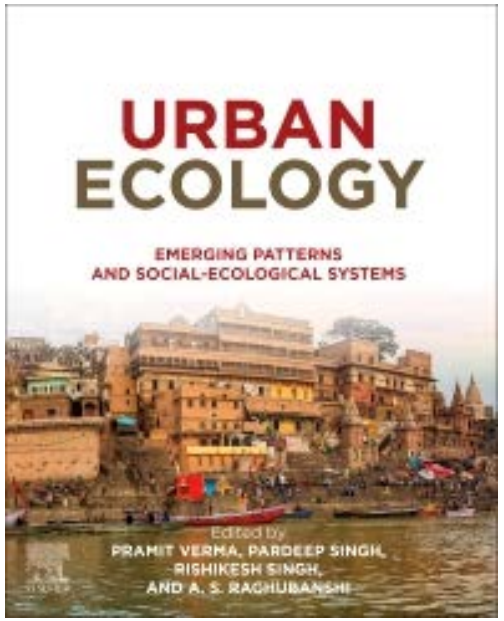
Johannes Langemeyer. (2015). *Urban Ecosystem Services.*

- Яргункина Н. Ю. (2014). *Экология города.*
- Довчиндорж Г., Мөнхболд Д., Ариунжаргал Г. (2013). *Хотын экологи*





LITERATURE: Recommended

Urban Resilience and Adaptation for India and Mongolia: curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
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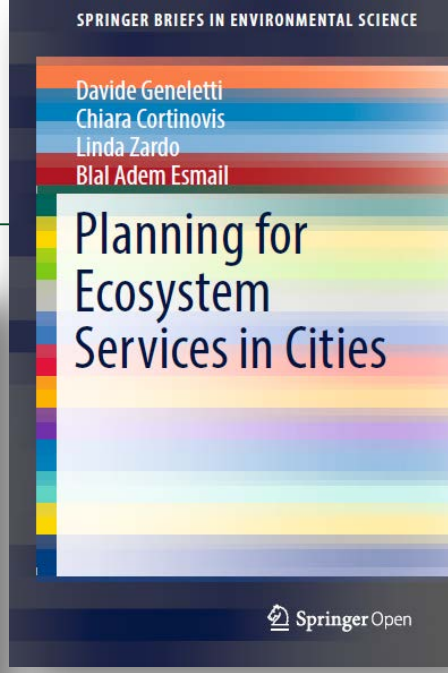
1. Вершинин В. Л. (2014). *Экология города*
2. Басыйров А.М. (2013). *Экология города*

Materials and equipment for training

1. Instruments, equipment, and reagents for determining the water environment, hardness, concentration of macro elements, and pollution
2. Tools, equipment, and reagents for determining the mechanical composition of soil and the content of macro elements in soil extract



ABOUT LECTURER

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Assoc. prof. AMARJARGAL A.

- Biochemistry
- Urban greening

- EU ERASMUS+ INTENSE project
- EU ERASMUS+ URGENT project

Assoc. prof. UNURNASAN D.

- USE ICT in education
- Urban management, smart city

- EU ERASMUS+ INTENSE project
- EU ERASMUS+ URGENT project