

## Land in the City - Green in the City

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25 July – 19 August 2022

**CATEGORY** Metropolitan Studies & Urban Development

### COURSE STRUCTURE

You will receive a total of 45 hours of academic lessons (one lesson equals 45 minutes; 15 hours per week). Lessons will comprise lectures, group work, discussion sessions, and excursions.

### WEEKLY SCHEDULE (Track B)

- Monday: 9 am – 10.30 am & 11 am – 12.30 pm
- Wednesday: 9 am – 10.30 am & 11 am – 12.30 pm
- Thursday: 1.30 pm – 3 pm & 3.30 pm – 4.15 pm

### COURSE LANGUAGE

This course is taught in English, including the readings. For the understanding of the texts and the discussions in class, language-level B2 (Common European Framework of Reference for Languages) is required.

### TARGET GROUP

This course is designed for undergraduate students of all subjects with a strong interest in urban planning, ecological, environmental, cultural and agricultural topics.

### CREDITS = 5 ECTS

*All courses are accredited according to the European Credit Transfer System (ECTS).*

## CULTURAL ACTIVITIES

Learning extends beyond your course! As a participant in HUWISU, you are invited to join our cultural and social programs. We offer a fine selection of interesting extra-curricular activities that aim to give all participants an unforgettable stay in Berlin. Through excursions, social gatherings, and sport activities, we are providing you with the opportunity to get to know the city, the university, and your classmates and to meet students from all parts of the world. The costs for these offers are included in the program fee.

Below, you find examples of previously offered cultural activities. You will be informed about the respective cultural program after your enrolment via email as well as during the course period.



### POLITICAL AND HISTORICAL GUIDED TOURS

- Federal Chancellery (*Bundeskanzleramt*)
- German Parliament (*Bundestag*)
- House of Representatives (*Abgeordnetenhaus*)
- Topography of Terror exhibition
- Political Archive of the Federal Foreign Office

### CULTURAL GUIDED TOURS

- Kreuzberg Tour
- Museum Island (*Museumsinsel*)
- Berlin Cathedral (*Berliner Dom*)
- Daytrip to Potsdam
- Exhibitions

### SOCIAL GATHERINGS

- Welcome Get-Together
- Beach Volleyball
- Farewell Party

### EXPECTATIONS & POLICIES

**Preparation for lively discussions in the classroom:** be on time, have at least the required readings completed, and points in mind for discussion or clarification.

**Assignments:** complete all assignments according to the specified requirements on the schedule including handing them over to the lecturer.

**Commitment in class:** pay particular attention to the lecturer and respect differences of opinions (classmates', lecturers).

**Academic guidelines:** Comply with academic integrity policies (such as no plagiarism or cheating, nothing unethical) especially the academic honor code and the student code of conduct.

**Attendance policy:** No unexcused absences are permitted. Students must contact their class teachers to catch up on missed work – to excuse absence please contact the HUWISU office.

## COURSE DESCRIPTION

Explore and learn about urban plants and planting. Within intensive industrialization and urbanization the urban greens were lost in many cities. Now with increasing environmental problems, lack of farmland and food supply, gardens can find the way back to urban dwellers and into the cities. The course provides academic research, institutional aspects, projects and experiences of urban gardening in theory and practice for future decision-makers in the fields of urban design and planning, civil engineering, architecture and landscape architecture as well as for students from administration, politics and legislation.

The classes will deal with the history of urban agriculture and garden cultures for example in the old Persian world and the ancient cultures of Mayas, Aztecs and Incas, as well as in North and South America, and Europe. In the classes will be discussed the current role and future of urban agriculture and horticulture in the world, especially in Berlin.

The course will identify and show examples of the ecological, economical and social functions of urban agriculture and horticulture in large cities and discusses the institutional aspects, the protection and the creation of green spaces and innovative green infrastructure. The seminars, lectures and field trips will offer specific skills, tools and know-how to manage urban design and environment sustainable, in particular to deal with food production, energy, housing, transport, water and recycling management. Meet experts of urban agriculture and horticulture projects in Berlin, such as green roof and walls, allotment gardens, community gardens and market oriented urban farms (vegetable, fish and algae production). Explore different ways, instruments and conservation measures to protect and create urban green infrastructure.

## COURSE OBJECTIVES AND LEARNING OUTCOMES

By the end of the course, students will be able to understand:

- the role, benefits and institutional aspects of urban agriculture and sustainable urban development;
- applied research and innovation in ecological urban agriculture and horticulture, such as vertical farming - green roof and wall technologies - railtrack, riverside and roadside greening - permaculture - aquaculture and aquaponic gardening;
- the different fields of urban gardening such as allotment gardening, city gardens and farms, community gardens, urban parks and forestry, guerilla gardening and others;
- the environmental and social aspects in terms of education and integration of different generation and cultures on climate change, food security and biodiversity;
- scientific research and best practice of urban agriculture at the Humboldt University and in the city of Berlin.

## READINGS

A handout and other supplementary materials will be handed out in class

### **Suggested**

Allen, J.; Mollison, B. (2007): Smart Permaculture Design, New Holland, ISBN 978-187706918.

Bernstein, S. (2011): Aquaponic Gardening - A Step-by-Step Guide to Raising Vegetables & Fish Together, New Society Publishers; Original edition, ISBN-13: 978-0865717015

- Bosso, Ch. (2017): Feeding cities. improving local food access, security, and resilience. Routledge. New York.
- Carreiro, M. M. et al. (2011): Ecology, planning and management of urban forests - an international perspective, ISBN 0-8148-0030-3.
- Despommier, D. (2010): The Vertical Farm - Feeding the World in the 21st Century, Thomas Dunne Books, St. Martin`s Press, New York, ISBN-10: 0312610696
- Dunnett, N. et al. (2008): Planting Green Roofs and Living Walls, Timber Press, Portland, London.
- Dwyer, J.; et al. (1991): "The significance of urban trees and forests: toward a deeper understanding of values". Journal of Arboriculture, 17(10), pp. 276-284.
- Miller, R. W.(2007): Urban Forestry: Planning and Managing Urban Greenspaces, ISBN1-57766-510-4.
- Müller, Ch. (2011): Urban Gardening: Über die Rückkehr der Gärten in die Stadt. oekom. München.
- Müller, Christa (2012): Practicing Commons in Community Gardens: Urban Gardening as a Corrective for Homo Economicus. Published in: Bollier, David/Helfrich, Silke (Editors): The Wealth of the Commons. A World beyond Market and State, 219-224, Amherst 2012
- Rosenzweig, C. et al. (2011): Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network. Cambridge University Press
- Ryn, S. et al. (1996): Ecological Design. Island Press. Washington.
- Snodgrass, E. C. (2006): Green Roof Plants: A Resource and Planting Guide, Timber Press, Portland.
- Cuba's urban farming revolution (2014): [www.architectural-review.com/comment-and-opinion/cubas-urban-farming-revolution-how-to-create-self-sufficient-cities/8660204.article](http://www.architectural-review.com/comment-and-opinion/cubas-urban-farming-revolution-how-to-create-self-sufficient-cities/8660204.article)
- UN HABITAT (2016): World Cities Report 2016: Urbanization and Development – Emerging Futures.
- UN (2015): Revision of World Urbanization Prospects.
- UN (2016): The 2030 Agenda for Sustainable Development

## ASSIGNMENT INFO

### **Working in groups of 4-5 students from different countries to present:**

1. Paper (each student 4-5 pages),
2. Presentation (each group presents 20min, afterward 5min discussion).

### **Material and information be generated by students out of:**

1. lectures, seminars and excursion,
2. interviews, readings and literature recherche.

### **Students learn:**

1. to form and organize a working group out of participants from different countries, also speaking different native languages and have different professional and cultural backgrounds,
2. effective planning, developing and collaborating in the group,
3. discovering the information for the theme and developing the outline and content,4.
4. focusing and research for information on a specific area with different methods,

5. writing and presenting their work in the group, in front of the class and other professors.

**The final grade will be composed of: Active participation in the seminars, lectures and field trips (30%), Active participation in working groups and quality of assignments (60%: paper 30%, presentation 30%), Punctuality and attendance rate (10%: a minimum of 80% attendance rate is required).**

**Failure to fulfill one of the mentioned components results in failure of the class.**

## **YOUR INSTRUCTORS**

**Mr. Volker Minks, Dipl. Ing. Agr.**

Volker Minks holds a master degree in agricultural engineering with specialization in urban gardening, landscape design and sustainable urban planning. Mr. Minks has worked in interdisciplinary research projects in the areas of urban agriculture and horticulture, green technology, innovation and sustainable urban planning in Germany, the United States, Cuba and Brazil. Until now he works with Professors from the Life Sciences Faculty at the Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences of Humboldt-Universität zu Berlin, and affiliated with the Escola Superior de Agricultura "Luiz de Queiroz" University of Sao Paulo (USP).

His research is related to the ecological, economic and social benefits of green areas in cities as ecosystems, especially in the context of research, practice and education on megacities and climate change. In 2011 he worked as coordinator for the C40 Sao Paulo Large Cities - Climate Summit and co-produced the publication - Building Sustainable Cities. Since 2011 he acts as coordinator and lecturer for the HUWISU summer school course "Land in the City, Green in the City". Since 2009 he is developing the cooperation between USP and HU Berlin, and organized several KOSMOS Workshops as coordinator and instructor at USP and Humboldt: Berlin meets Sao Paulo: Cities for all – livable and sustainable. Since 2014 he is part of the Cátedra José Bonifácio of the Ibero-American Center (CIBA USP), dealing with the challenges of Latin America in the areas of international governance, trade, negotiations, security, energy, education, innovation and environment. Currently he works with The Global Institute For Peace - GLIP at the University of São Paulo. Working in projects with balance of gender and diversity as well with the indigenous population to promote preservation of biodiversity and culture, food security, peace and sustainability.

## **COURSE SCHEDULE**

**1st week: Introduction, History and Current Role of Urban Agriculture and Horticulture, Garden Cultures and the Green Urban Design Network**

### **Course introduction**

Presentation of Topics

Presentation of Students

Logistics

## **Introduction to the History and current Role of urban Agriculture and Horticulture (L)**

The ability to grow crops has changed the way of life for humankind. The development of agriculture made it possible to settle. Since then, food has been grown outside and inside of cities. The class will deal with the history of urban agriculture and horticulture technics and garden cultures as example from the old Persian world and ancient cultures of Mayas, Aztecs and Incas, as well from North America and Europe.

Within intensive industrialization and urbanization the gardens were lost in many cities. Now with increasing environmental problems, lack of farmland and food supply urban agriculture and horticulture activities, also described as urban gardening, can find the way back into the cities. Therefore urban gardening is subject of intense debates regarding its viability and efficiency.

Today, more than 50% of world population living in urban areas. In 2050 approximately 66%. Urban agriculture and horticulture can help to fulfill the changing needs and demands of people who live in the growing metropolitan areas. Urban Gardening is a term for a large and complex area of scientific horticulture and sustainable urban food production. It deals with the complex problems of growing plants in dense populated areas, using them effectively, and maintaining their long-term health and functional value.

The urban gardening movement has its obstacles to be involved t in the concepts of smart, compact and global cities. The current role and the future of urban gardening in the world will be discussed.

## **History of Garden Cultures and Urban Agriculture (S)**

Gardens and the vegetation have inspired human history and art. The vision of paradise - 'paradesa' *pāri-daēza* the old Persian word for a fenced area - has influenced the phantasy of human kind with the aspiration of heaven on earth. Even today the many different types of garden cultures reflect this basic need to create a place of beauty and connectedness to nature according to diverse interpretations of esthetical values and philosophy. Garden cultures are excellent examples of the concept of 'Nature-Culture', that will show us the way human beings have accommodated within their social and natural environment. The human ecological triangle as the Nature-Culture arrangements operate with two dynamic motivations. There is the need for social acceptance, as articulated by the contemporary German philosopher Axel Honneth alongside and as strong as the one for material existence. The Lecture will introduce the human ecological framework that will help to analyse the history of garden cultures in different parts of the world.

Discussion: What do gardens and paradise mean and how are they culturally aligned?

## **Green Cities - The Green Urban Design Network and the Berlin Open Space System (S)**

Urbanization, buildings and vegetation seem to be three difficult non-compatible elements within cities. The Green Urban Design Network includes agriculture and horticulture activities as an integral part of sustainable urban planning processes.

The lecture introduces the students to green infrastructure and ecological design technologies that help render the urban environment sustainable, crucial to addressing the economic, demographic, social and environmental challenges in cities. The different ways to protect and create new green habitats: green roof and walls, allotment gardens, city farms, rail track and roadside greening, riverside greening, parks, tree planting and forestry, vertical farming, community gardens, guerrilla-gardening and others. The class also shows that market oriented urban farms with vegetables, fish and algae production can play a important role of urban sustainable development. The city of Berlin combines today all kinds of green spaces and technologies and is an example of a green City. The Open Space System in Berlin connects

green areas by district cross linking through "green corridors" and "green belts". A network of green spaces to multiply the social and environmental benefits.

Discussion: urbanization and destruction of nature - challenges of urban development

Working Group Formation

### **Short Visit - Land Use Plan and City Models of Berlin - Senatsverwaltung für Stadtentwicklung Berlin**

The gray, blue and green infrastructure must be integrated into urban development in a sustainable and ecological way. Streets and buildings, urban greenery and water areas form the working and living space for people, as well for flora and fauna in the city. The maintenance of water and green areas reduces the risk of catastrophe and health problems, such as flooding. The task of future urban development is therefore to link different land uses and to integrate an overall ecological concept - such as the Land Use Plan and the Open Space System of Berlin

Berlin - 44 % - Green Spaces and Waterways - more than 2500 public green spaces and recreational spaces - 6400 hectares in total.

The long-term **Landscape Program** includes the **Nature Conservation Program** and the **Land Use Plan**. The *Berlin City Models*, maps and brochures demonstrate sustainable urban development over the last 40 years.

### **Field Trip - Urban Nature and Food Production - Allotment Gardens in Berlin – The Garden Colony Rehberge (Ex)**

Allotment gardens are green urban spaces with essential social, economic and ecological benefits.

The field trip will show the significance and the close relationship between urban development and the role of small city gardens in Berlin. Presented will be the historical development during the 19th century, the partial progress in the 1920s, survival during the war, the separate development while Berlin was divided, and the common development after 1990. They are a vital component of a "green lung" of cities providing space for fruit and vegetable cultivation, recreation and communication, cultural integration and social sharing of people from different generations and cultural backgrounds. The ecological and climate impact is essential in terms of providing habitats for flora and fauna, improve the urban air quality and balance the temperature. Since the gardens and these areas are state land, they become speculative objects with rising property prices, and their existence is constantly in danger, not only in Berlin.

Discussion: the role and future of allotment gardens in cities

## **2nd week: Research, Innovation and New Technologies in Urban Agriculture – Food Production and Greening**

### **Aquaculture and Aquaponic Gardening - An Introduction to Theory and Practice (S)**

This Seminar will introduce students to the theory and practice of aquaculture and aquaponic gardening. A 2011 FAO report predicts that food production will need to increase by 70% globally and by 100% in developing countries, to meet the increasing demand for nutritious food.

In order to produce greater quantities of high quality food and adapt to the drastically changing horticultural production conditions, including climate change and increasing resource scarcity, new and comprehensive knowledge, as well as innovative methods and approaches, are required. One such promising innovation is aquaponic gardening. Aquaponic links aquaculture with hydroponic vegetable and herb production as a bio-integrated system.

### **Campus tour at the Agricultural Research Institute in Dahlem**

Visiting the greenhouses, laboratories and experimental fields of the Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences. Explore and understand research and practice in urban agriculture and horticulture sciences.

### **Cultivation, Conditioning and Use of Ornamental Plants in Urban Centers (L)**

The class introduces students to research activities of horticultural and crop sciences. It involves horticulture plant systems, plant quality and product range development of new ornamental plants for outdoor and indoor gardens. Students learn about the cultivation, propagation and conditioning of ornamental plants, as well about the development of new greening solutions, to be used sustainably and economically in and on buildings. The class explains the complex problems of growing plants in urban areas, using them effectively, and maintaining their long-term health and functional values.

### **Green Urban Design - Technical Aspects of Green Roofs and Walls (L)**

Green roofs are important systems of ecological design and they benefit urban areas ecologically, economically and socially. Creating new green areas on roofs is one of the most innovative and efficient fields of study, constantly developing in the areas of ecology, agriculture and horticulture, as well in engineering and landscape architecture. The students will learn about Green Roof Technology as an important subject matter: The past and the present, generally categorized types of green roof systems - extensive and intensive green roofs, environmental aspects and effects - motivation and significance, potential of roof gardens - risks and chances - examples of green roofs in Berlin and worldwide. The use of different types of green roof systems can collectively serve the green infrastructure in urban areas with a multiplicity of benefits. Discussion: chances and risks of greening technologies

### **Field Trip - Best Practice in Berlin - Roof Gardens and Living Wall Projects (Ex)**

A green environment in Cities combines nature with ecological, economic and social welfare as well as landscape design benefits.

In Berlin, we find a variety of green roof and living walls on private or public buildings. As part of these field trips, the students will visit different wall and green roof projects that use intensive or extensive roof garden technology.

The experts will demonstrate and explain the construction, implementation and the specific use of plants as well as research on materials and new systems in the private and public sector. The Students can discover the climatic, social and economic benefits of different techniques.

### **Field Trips – MINT Engineering - First Building-Integrated Algae Plant Berlin**

Algae – produced in new plant systems - integrated on house facades and indoor for use as food and for cosmetics. Algae are considered the raw material of the 21st century.

It is estimated that there are around 73,000 different types of algae - very few of them have been scientifically researched. For the most part, it is algae from aquaculture or algae farms.

Urban algae cultivation is an integral part of the concepts and techniques of vertical farming, and the smart city strategy of the State of Berlin. The concept of the EUREF campus "Intelligent City" aims to implement sustainable urban development.

### **Field Trip - ECF - Efficient City Farming - Aquaponic-Water Circulation System combines fish Farming with Vegetable and Herb Cultivation (Ex)**

The ECF City farming system enables vegetable, herb and fish production within an urban environment. Is a CO<sub>2</sub>-neutral production with no pesticides, zero transportation miles, and with a reduced water footprint. The result is year-round sustainable food production with high resource efficiency and exemplary environmental standards. Ideal for all city farmers: restaurateurs, hoteliers, supermarkets, architects, schools and universities. Students learn about the manifold benefits. The economic and environmental protection goes hand in hand with 1) sustainable production of local vegetables and fish; 2) elimination of environmentally harmful transport routes and cold chains; 3) transparent production process; and 4) synergistic effects of using waste heat to allow year-round cultivation.

Discussion: the revolution of food production - chances and challenges

### **3rd week: Urban Gardening in Berlin - Environmental Education and Best Practice**

#### **Field Trip - Into the Woods: Urban Trees and Forestry - From Plant Selection to tree and Park Management (Ex)**

The Großer Tiergarten, a habitat for flora and fauna is situated in the center of Berlin. It is the place for recreation and nature experience as well to explore various historical gardens and cultural monuments. Its history goes back 500 years and has a many faceted horticultural and scenery-formative tradition. Typically for the park are the wide laws crisscrossed with small watercourses and with groups of trees, the lakes with small islands and the numerous bridges and paths as well the single ornament gardens such as the Luiseninsel and the Rosengarten. In the 16th century it used to be a forest and hunting reserve with humid meadows and swamps. In the 18th century it was a baroque garden with forest character, and in 19th century reshaped as a scenery garden in the style of English gardens by Peter Joseph Lenné. In the 20th century the Großer Tiergarten served during and after the second world war shortly as a firewood resource and agricultural space. The excursion will demonstrate certain botanical species, the characteristic of the habitats and landscapes as well the planting and institutional aspects to maintain the forest.

Discussion: urban forests last major refuges for fauna and flora - why and how to preserve

#### **Field Trip - Climatic Garden Maxim - Urban Youth Educational Project (S & Ex)**

The Climatic Garden Maxim is a project for leisure activities for children, youth and the neighborhood. It is part of a special research project for the development of climate adaptation strategies for Berlin and Brandenburg. The Maxim Climate Garden is integrated "educational garden" which is managed with great commitment of dedicated people.

The children and youth learn about climate change and practical gardening such as methods of water saving, organic cultivation of fruit, vegetables, herbs and flowers as well of specific preparation for serving and cooking of the garden products.

The Maxim offers recreational opportunities and creative courses, music and theater performances as well it is open for artistic and sportive activities. The students will learn by guided tours about the different facets of this educational projects and garden experiments. They will have the chance to plant, as well to experience and taste fresh garden products.

Discussion: gardens as centers of social integration and environmental education

#### **Tempelhofer Feld - From City Airport to a growing Urban Park Landscape - the Allmende Kontor (L & Ex)**

The excursion takes place on Tempelhofer Feld. The Allmende-Kontor is being developed as contact and networking place, as knowledge storage and learning place. It is an initiative to

create a garden for everyone interested and involved in community gardens and urban farming in Berlin. Activists bring this green space through collaborative use as a common community asset to life. In particular with respect to social, cultural and biological diversity, participative urban design, city ecology, education, nutrition and health, solidarity, integration and civic engagement. Students will meet garden activists from the Berlin community garden scene.

Discussion: history and challenges of urban development and community gardening worldwide

#### **4th week: Ecological Agricultural and Design Principles by Permaculture - Students Presentations and Evaluation**

##### **Permaculture - An Alternative Planning Method in Urban Gardening - Principles of Permaculture (L & Ex)**

The lecture and the exercise will give an introduction to Permaculture as an alternative planning method. Bill Mollison (2002) has defined "A *Permaculture is a complex agricultural ecological system, which is designed, so that minimal work is put in and maximum harvest is gained*". Permaculture is based on ecological and biological principles. The Philosophy behind Permaculture is to work with nature instead against it. This means a system which is integrated harmoniously and sustainable between the environment and humans, food, energy and other materials. The Lecture gives an overview of the philosophy and the application area of Permaculture. Thus, biodiversity is the basic principle of the idea of year-round self-sufficiency in food. The lecture discussed the 12 most important Permaculture planning principles created by Bill Mollison. In the outdoor exercise students will experience the philosophy of Permaculture.

##### **Presentations (Examination)**

Final Presentation of the Student Working Groups

##### **Evaluation and Certification**

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The course and its syllabus are subject to change. Last update: 17 March 2022