

## **Vorlesungsverzeichnis**

M.Sc. Integrated Urban Development and Design  
(PO 2020)

Sommer 2022

Stand 30.11.2022

**M.Sc. Integrated Urban Development and Design (PO 2020)**

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**M.Sc. Integrated Urban Development and Design (PO 2020)****119122403 Parametric Urban Design and Analysis II****A. Abdulmawla, E. Fuchkina, S. Schneider**

Veranst. SWS: 2

Seminar

Di, wöch., 13:30 - 15:00, Belvederer Allee 1a - Allg. Medienpool 003, 05.04.2022 - 05.07.2022

**Beschreibung**

Cities are complex human made objects. They consist of thousands of elements and need to satisfy numerous human needs. The definition of urban form (street network, plots, building volumes) is a crucial step in the planning of cities because it has the longest lasting effect on their social, economic and ecological performance. Thus, this step needs to be undertaken with greatest care. In this course we will deal with computational methods to support this process.

The course extends the knowledge and methods you learned in PUDA I. You will learn and train advanced parametric modeling techniques and further analysis methods as well as basic knowledge about statistics to study relationships between urban form and its manifold functions.

You apply the learned skills in an urban planning project for new towns in Ethiopia (IUDD Study Project "Circular Urbanism"). It is expected that the participants have absolved the course "Parametric Urban Design and Analysis" from the previous semester.

**Voraussetzungen**

Studiengänge: Master Integrated Urban Development and Design (IUDD)

**119123701 Introduction to Masters´ Thesis****P. Schmidt, S. Schneider**

Veranst. SWS: 2

Seminar

Mo, wöch., 11.04.2022 - 04.07.2022

**Beschreibung**

The preparatory seminar is a combination of various aspects that support students to prepare and organise their master's thesis. It aims to the individual thematic development of the thesis topic. Derived from the subject areas of IUDD the thesis refers to the inductive development of interdisciplinarity. Students are guided through the logic of research, the definition of individual research interest and the more objective need to communicate specific knowledge related to a certain subject of interest. At the end of the seminar, a thesis proposal should be developed based on an adequate research framework and research design, considering methodological aspects and quality of research. This seminar is arranged as intensive workshop with lectures, discussions, exercises and group work.

**121123302 Urban Modeling and Simulation (UMS) - Advanced****R. König**

Veranst. SWS: 2

Seminar

Mi, wöch., 11:00 - 12:30, Belvederer Allee 1a - Allg. Medienpool 003, 06.04.2022 - 06.07.2022

**Beschreibung**

Im Rahmen des Seminars werden die Teilnehmer in Methoden der Stadtsimulation eingeführt. Wir werden uns mit der Modellierung komplexer räumlicher Systeme auf regionaler und urbaner Ebene befassen. Es werden Analyse zur Nutzung urbaner Strukturen eingeführt (z.B. Fußgängerströme oder ökonomische Potentiale) sowie Modelle für

Interaktionen von Flächennutzungen vorgestellt. Es wird vorgestellt, wie mittels System Dynamics Modellen zeitliche Veränderungen von „Stocks and Flows“ simuliert werden können.

### Bemerkung

Die im Rahmen von Online-Seminaren vermittelten Kenntnisse werden in Konsultationen vertieft und anhand mehrerer Übungsaufgaben belegt. Es sind keine technischen Vorkenntnisse erforderlich.

## 121123701 GIS for Integrated Urban Development Part II

**M. Abdelaziz Ibrahim Mousa**

Veranst. SWS: 2

Seminar

Mo, wöch., 13:30 - 15:00, Bauhausstraße 9c - Arbeitsraum 004, 11.04.2022 - 04.07.2022

### Beschreibung

Geographic Information Systems (GIS) are a useful tool for multiple disciplines and user groups. In urban development and planning, different constituencies like local authorities interact through GIS e.g. applying it in environmental agencies, transportation, energy, resource and waste management, retail, disaster management, and socio-economics. Collecting, managing, analysing and visualising data with GIS as an information sharing tool can help in different stages of planning processes – from identifying problems to evaluating different planning proposals. Working with GIS allows to create easy understandable maps and to enable communication processes.

This course introduces different spatial analysis of Vector and Raster data based on ESRI ArcGIS Toolbox tools. For developing a complex process through different tools, ModelBuilder will be applied to connect different tools and automates workflow based on different variables and parameter. The participants will be introduced to ModelBuilder interface, proprieties and how to create, run and edit the Model. Various spatial analysis qualifications will be gained such as where to allocate each use/service based on pre-identified criteria.

Basic knowledge of ArcGIS is required for the course such as create, edit and deal with Geodatabases, feature dataset, feature classes, data selection and visualization.

The course will be assessed based on assignment and final project where participants create their own models and present it. This will be based on an excursion to Chemnitz in the second half of the semester where participants will apply their mapping capacities in GIS in the context of a pedestrian analysis.

## 121223802 Parametric Energy Modelling and Analysis: Introduction to energy modelling in the urban context

**R. König, N.N.**

Veranst. SWS: 2

Seminar

Fr, wöch., 09:15 - 10:45, Belvederer Allee 1a - Allg. Medienpool 003, 08.04.2022 - 08.07.2022

### Beschreibung

In this module, urbanist and civil engineer Jakob Becker will give insights into energy modelling and simulation in the building context using the programming environment Grasshopper for Rhino.

First, we introduce the students to the basics of the visual programming environment Grasshopper for Rhino (this course does not require experience in working with Grasshopper), of energy-focused architecture and of working with energy and weather data. Afterwards, the students are guided through different examples of energy simulation applied in urban contexts with the main focus lying on solar radiation simulation and adjacent fields, such as daylight simulation, energy gains calculation, location optimization and geometry definition based on solar radiation and climatic conditions.

This module will give insights into solar urban planning principles and aims to raise the awareness of integrating local climatic conditions into the process of urban planning.

The course is held at the university as well as online. Teaching language is English.

### 122120204 Helmholtz-Campus im Südraum Leipzig

**B. Nentwig, K. Schmitz-Gielsdorf, P. Schroeder**

Veranst. SWS: 10

Projektmodul

Do, wöch., 09:15 - 16:45, 07.04.2022 - 07.07.2022

Block, 09:00 - 22:00, 07.04.2022 - 07.07.2022

#### Beschreibung

Im Südraum Leipzig soll ein neues Helmholtz-Forschungszentrum zum Klimawandel entstehen. Das Projekt unter dem Motto "Wissen schafft Perspektiven für die Region!", ist Teil des vom Bundesministeriums für Bildung und Forschung (BMBF) im Rahmen des Strukturstärkungsgesetzes Kohleregionen angestoßenen Prozesses. In Zusammenarbeit mit dem Helmholtz-Institut UFZ Leipzig soll ein neuer Camput im Südraum Leipzigs geplant werden, Gesamtkonzept und Vertiefung im Hochbau.

### 122122401 Integrated Urbanism - Adaptive Planning Strategies for Rural-Urban Transformation in Ethiopia.

**S. Schneider, R. König, P. Schmidt, M. Bielik**

Veranst. SWS: 10

Projektmodul

Do, wöch., 09:15 - 18:30, Bauhausstraße 9c - Arbeitsraum 004, 07.04.2022 - 07.07.2022

Di, Einzel, 09:00 - 14:00, Bauhausstraße 9c - Arbeitsraum 004, Abschlussrundgang, 12.07.2022 - 12.07.2022

#### Beschreibung

The transformation from a mainly agricultural society to industrialisation that is faced these days in Ethiopia is linked to substantial changes of the country's rural and urban areas. With these shifts, the processes of urbanisation and expectations towards modernisation is seen as a chance to create new and adaptive urban planning proposals that meet specific needs and conditions of the Ethiopian development context in Sub-Saharan Africa. While the World Bank is promoting rapid economic growth for Ethiopia, still the country is one of the poorest countries in the world, and the question arises in how far urban design and planning can create concepts and flexible urban models that are reactive enough to stimulate different scenarios responding for balanced development.

One of the main frameworks to create such a balance for emerging cities are the United Nations Sustainable Development Goals (SDG). Different key factors like food security, energy, water and sanitation are linked to resource questions of material and land and how those can be influential on the development of prospective cities. Thus, for the development of new towns in rapidly urbanizing regions the understanding of material flows and circulation within the urban system is crucial when it comes about any building activity that determines the urban form and what we finally experience as urban, including open and public space and healthy living conditions.

To better understand how such flows of material resources and energy are linked to building activities in rural urbanisation processes and their impact on the existing environment, in our study project, we are referring to urban metabolism as a framework for urban design and planning of small cities.

Participants will be analysing urban patterns and flows of small cities, learn about the context between urban metabolism and its spatial implications and apply tools and methods for a spatial analysis and finally implement that knowledge in spatial models and concepts to simulate possible development scenarios.

#### Voraussetzungen

Studiengänge: Master Integrated Urban Development and Design (IUDD)

### Master-Colloquium

**P. Schmidt**

Kolloquium  
wöch.

**Beschreibung**

The course is the platform for presentation and discussion of the Masters theses. The candidates will present the intermediate results of their work on their individual topics. Suggestions for further action will be made by fellow students and academics attending the colloquium. Admission for the Master examination is required for participation. Performance record (attestation) will be achieved by giving an oral presentation.

**engl. Beschreibung**

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**Bemerkung**

Time:Block course, see notice-board

Location:Belvederer Allee 5

Start: See notice-board

Registration: Not necessary, all students accepted for the Master examination have to participate

**Voraussetzungen**

Admission for the Master examination is required for participation.

**Leistungsnachweis**

Performance record (attestation) will be achieved by giving an oral presentation.

### Modellprojekteforum IUDD

**P. Schmidt**

Veranst. SWS: 2

Seminar

Do, Einzel, 14:00 - 20:00, Geschwister-Scholl-Str.8A - Besprechungsraum 102, 05.05.2022 - 05.05.2022

Block, 08:00 - 22:00, Geschwister-Scholl-Str.8A - Oberlichtsaal 213, 05.05.2022 - 06.05.2022

Fr, Einzel, 08:00 - 20:00, Geschwister-Scholl-Str.8A - Besprechungsraum 102, 06.05.2022 - 06.05.2022