

课程编号 课程名称  
数据驱动设计专业课程营

1. 课堂讲授学时 **Lecture Hours: 8 学时 / 8 Hours**
2. 课堂实验学时 **Laboratory Hours: 32 学时 / 32 Hours**
3. 课下研讨学时 **Colloquia Hours: 5 学时 / 5 Hours**
4. 学生课下投入学时 **Individual Study Hours: 27 学时 / 27 Hours**
5. 学分 **Credits: 2 学分 / 2 Credits**
6. 开课学年学期 (如果有强制性的要求则必须填, 否则可以不填) **Occurrence: 1<sup>st</sup> year, 2<sup>nd</sup> year, 3<sup>rd</sup> year, 4<sup>th</sup> year; Autumn, Spring: 暑期夏令营 / Summer School**
7. 先修课程 **Prerequisite(s):** 必须先修的课程直接写课程编号和课程名称, 建议先修的课程在课程名称后用\*号标注, 并在下一行注明: **\*Recommended, not required as prerequisite: 无 / None**
8. 课程概要 **Course Description:** 100 字以内, 学习内容以学术关键词出现。

本课程聚焦城市设计、公共空间、场所营造、城市数据、社会空间关系与后碳城市, 探讨技术、环境与日常生活如何共同塑造城市, 并训练学生提出以人为本、社会回应与环境可持续的设计策略。

This course explores urban design, public space, placemaking, urban data, socio-spatial relations, and post-carbon urbanism. It examines how technology, environment, and everyday life shape cities, while training students to develop people-centred, socially responsive, and environmentally sustainable design strategies.

9. 课程预期学习成果 **Course Outcomes:** 用数字 1 到 9 列出每一项主要学习成果

(1) 理解城市设计和城市数据的一些基本概念。 Understand some of the principal concepts of urban design and urban data.

(2) 分析特定背景下的城市设计实践, 并运用数据驱动的方法交流研究成果。

Analyse urban design practices within a specific context and communicate findings using a data-driven approach.

(3) 提出针对特定背景问题的原创城市设计方案, 并运用一系列合适的视觉技术进行展示。

Propose original urban design solutions which respond to specific contextual issues and present them using a range of suitable visual techniques.

10. 教学内容与学时分配 **Course Content, Laboratories and Laboratory Hours** (有则填, 没有则不填), **Colloquia Hours** (有则填, 没有则不填): 各章节目录与学时, 实验内容与学时, 研讨内容与学时

Dates/ 日期	Hours/ 学时	Teaching content/ 教学内容
7.6	8 hours	Project Introduction & Group formation.

7.7	8 hours	Desktop research & Fieldwork preparation.
7.8	Student design hours	Site visit, fieldwork and group tutorials in the field.
7.9	8 hours	Studio working in groups.
7.10	8 hours	Studio Tutorials.
		Project Reviews.

### 11. 考核与成绩评定 Grading:

Homework: 15%

Inclass Quizzes: 10%

Group Presentation: 10%

Design Project / Portfolio Evaluation: 65%

12. 教材, 参考书 **Text & Reference Book:** 作者, 书名, 版本, 年份, 国际标准书号 ISBN

Madanipour, A., 1996. Urban design and dilemmas of space. *Environment and planning D: Society and Space*, 14(3), pp.331-355.

Wiener, P.L. and Sert, J.L., 1950. *Quatre plans directeurs pour des villes Sud-américaines: Medellin, Tumaco, Chimbote and Lima*.

Larice, E., 2012. Il Piano Marshall in Francia.

Carmona, M., 2014. The place-shaping continuum: A theory of urban design process. *Journal of Urban Design*, 19(1), pp.2-36.

Ampatzidou, C., Bouw, M., van de Klundert, F., de Lange, M. and de Waal, M., 2015. *The hackable city: A research manifesto and design toolkit*. Amsterdam Creative Industries Publishing.

### 13. 编写教师 Course Lecturer:

Miguel Paredes Maldonado and Ana Miret Garcia with Ziwen Sun (孙子文)

编写教师 Course Lecturer (签字):





Miguel Paredes  
Maldonado  
2025

*Close Encounters:  
Mapping Conversations  
with Nonhumans in the  
Urban Landscapes of  
Karlsruhe (Germany)*



# DATA-DRIVEN URBAN DESIGN

## INTERNATIONAL SUMMER SCHOOL

6<sup>TH</sup> - 10<sup>TH</sup> JULY 2026

Course Organisers: Dr Ana Miret García & Dr Miguel Paredes Maldonado

Issue Date: May 2026

**Theme** Whilst the design of cities has existed for centuries, urban design is a relatively recent discipline, formalised in the mid-20<sup>th</sup> century to integrate the knowledge brought by all the disciplines focused on designing contemporary cities, such as architecture, landscape architecture, road engineering and city planning (Sert 1950). Urban design has evolved as an interdisciplinary, collaborative and multi-stakeholder field and a practice dedicated to shaping and managing urban environments from multiple perspectives (Madanipour 1996).

As a holistic and integrative field, urban design looks at how people behave in physical environments, how people perceive places, how places came to be, and how design proposals may relate to the natural, physical, and cultural environments in which they are situated (Larice et al 2012). Ultimately, urban design aims at enhancing the quality of life for the city's inhabitants by making better places for people (Carmona et al 2003).

Both urban space and the design of the urban field are shaped by entangled physical, social and natural processes. As part of these processes, digital technologies and technical modes of knowledge have become important infrastructural platforms that shape both our social field and our cultural landscape, forming a novel "technostructure of society." (Böhme 2012). This Summer School will make use of a key component of this technostructure: the ubiquitous layers of urban data that nowadays shape our built environment across all scales.

During the 1960s Jane Jacobs, William H. Whyte and Jan Gehl pioneered the human dimension of cities by focusing on public space and human activity: a design of cities with and for people. The concept of placemaking originated as a bottom-up approach to community building, aimed at creating and improving the public spaces of everyday life (Madden 2011) by interrogating what happens in the public spaces of the city, why, how, and by whom? (Courage 2020).

As people go to work, sit at the café or move around the city, they are actively and collectively inhabiting the city. The local urban environment provides what people need to realise and live a full and dignified urban life. Contemporary public spaces play a central role in the social life of cities, but they also need to navigate the tensions created by privatisation and commodification processes as they are used as a vehicle of consumption. Often, decisions around the provision and location of amenities and facilities are rationalised by their potential to attract businesses and tourists and only considered in terms of their economic – rather than social – impact. Urban public spaces must also navigate pressing technological, infrastructural and environmental factors in the contemporary city: pervasive digitalisation, algorithmic governance, threatened biodiversity and the major transformations to both urban mobility and urban material cultures brought about by an unavoidable post-carbon future.

Urban places are under constant evolution, and urban designers need to forge strategies able to explain the complex systems by which cities operate and the impact of urbanisation on social, spatial and temporal relations. Urban places are continuously shaped and re-shaped -physically, socially and economically- through planned interventions, everyday use and long-term place keeping (Carmona 2014).

Urban design has a capacity to create new forms of public spaces which encapsulate ideals of urban identity, citizenship and belonging, creating less fragmented and more integrated urban places. Urban design proposals should aim to improve the quality of the urban environment by responding to social, economic and environmental concerns.



Building on these ideas, the Summer School will be framed around critical questions pertaining to urban places, placemaking and contemporary urban technification: What novel modalities of urban knowledge can be unpacked by tapping into data-driven technostructures? How are contemporary urban cultures transformed by pervasive computational platforms? How can designers meaningfully tap into these technical layers to better articulate the spaces of collective life in the city?

Contrary to commonplace, top-down narratives of urban data (exemplified, for instance, by the managerial, problem-solving approach of Smart Cities or Digital Twins), the Summer School will foreground “urban coexistence” rather than “urban performance,” thus seeking “urban knowledge” rather than “urban optimisation.” Our work will leverage data as a material to activate the theories of Urban Hacking: the creative use of digital media to “open up urban institutions and infrastructures to systemic change in the public interest.” (Ampatzidou et al, 2015)

**Organisation** The Data-driven Design International Summer School invites students to explore urban design by leveraging a range of data-driven methodologies and approaches, interrogating urban issues and proposing urban design interventions for a selected case study. This will involve collecting open-source online data, developing new fieldwork data, and preparing data-driven exploratory cartographies to better understand important, non-visible components of the urban case study. These visual cartographies will constitute our main tools for urban investigation and urban design, unveiling new flows of mobility and knowledge and making it possible to explore novel forms of social organisation that “transcend administrative delimitations” (Santamaría-Varas et al., 2023).

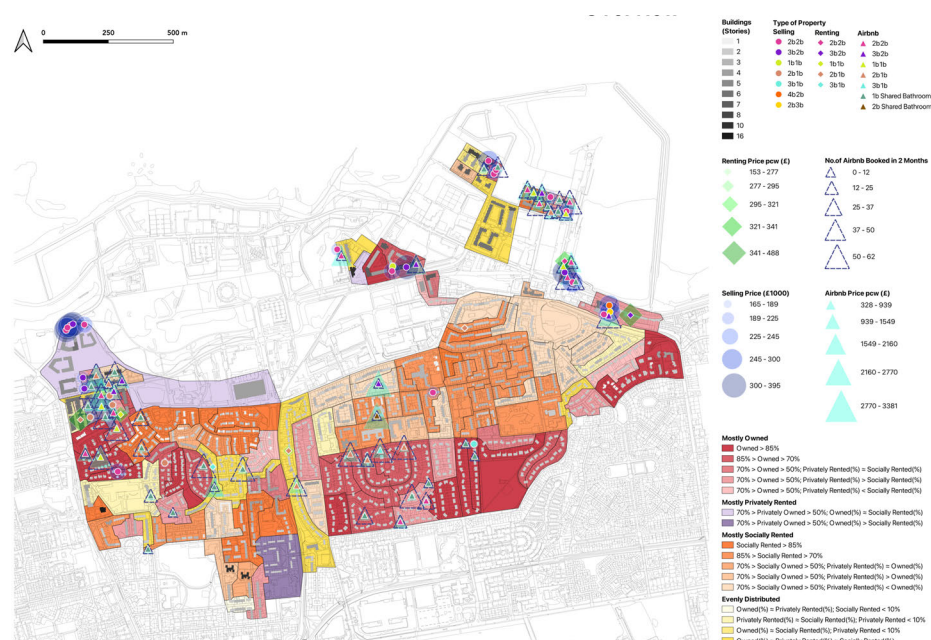
The Summer School is organised around daily topics and activities which introduce some of the main debates in urban design theory and practice.

During the first part of the week, students will interrogate some of the main theories around urban design and will analyse specific dimensions and conditions of urban places. During the second part of the week, students will synthesise their cartographic analysis of open data, exploring some of the principles, processes, strategies and tools that urban designers use to propose and guide change in cities. Each group will propose a strategy aimed at improving some of the conditions and qualities of urban spaces identified in the selected area of study. They will explore the design of criteria and/or processes necessary to implement changes in the proposed area of study.

Tasneem Grellet,  
Greg Bligh Caplan,  
Feliz Wong, Joyce  
Fan, Ethan Hurley,  
Jamie Hall, Nicole  
Hamchevici

2025

Analysis of the  
Residential, Land  
Ownership & Market  
contexts in Granton,  
Edinburgh



## DAY 1

### DATA COLLECTION AND DATA HANDLING

Goups will investigate one or more of the following data-driven dimensions of urban analysis:

#### URBAN FUNCTIONS & ACTIVITIES

- Which activities, facilities and services take place (mixed uses)? How are they integrated?
- What is the relationship between the different activities and the street (active frontages)? What time of the day/days or the week are the activities operating at?

#### MOBILITY & TRANSPORT

- How are places connected by different modes of transport?
- How do people move around?
- How are places accessed walking, by car or public transport?

#### SOCIAL PLACES

- How do people interact in public space?
- How do people socialise in public space?

#### NATURAL ENVIRONMENT

- How is nature integrated in public space?
- How do human life and natural life interact in the urban environment?

## DAY 2

### DATA ANALYSIS: Data-Driven Insights and Opportunities

- Which future scenarios could improve the conditions of public space?
- How do digital services and infrastructures inform our collective experiences and insights of the public realm?

## DAY 3

### DATA ANALYSIS: Challenges

- Which issues or problematics can we identify?
- What are the reasons behind these issues, and how can our combined insights be deployed to address them?

## DAY 4

### TRANSLATING INSIGHTS INTO DESIGN STRATEGIES

- Which urban principles could we propose to improve public space?
- How may our data-driven insights be mobilised to materialise these principles?
- Which criteria might shape our shared urban design visions?

## DAY 5

### DATA-DRIVEN DESIGN NARRATIVES

- How can we articulate, visualise and communicate data-driven design narratives and propositions that support our urban visions?
- Which design tools can help materialise those visions?
- Which principles, processes, strategies or tools could support the improvement of public space for all?

## DAY 6

# SUBMISSION

### Group Submission

In groups, present and submit your urban analysis and proposal. Your analytical maps should include a description of each topic explored and a brief reflection to summarise their understanding of the context. This will be assessed against Learning Outcomes 1 and 2.

Your proposal should respond to some of the issues identified throughout the week and explain the innovative urban planning and design solutions proposed. This will be assessed against Learning Outcomes 1 and 3.

Compile the work of the group into a single PDF document, named as follows:

**'StudentsSurnameName\_DatadrivenDesignSubmission.pdf'**

(e.g. MiretAna\_DatadrivenDesignSubmission.pdf)

### Learning Outcomes

#### LO1

*Understand some of the principal concepts of urban design and urban data.*

#### LO2

*Analyse urban design practices within a specific context and communicate findings using a data-driven approach.*

#### LO3

*Propose original urban design solutions which respond to specific contextual issues and present them using a range of suitable visual techniques.*

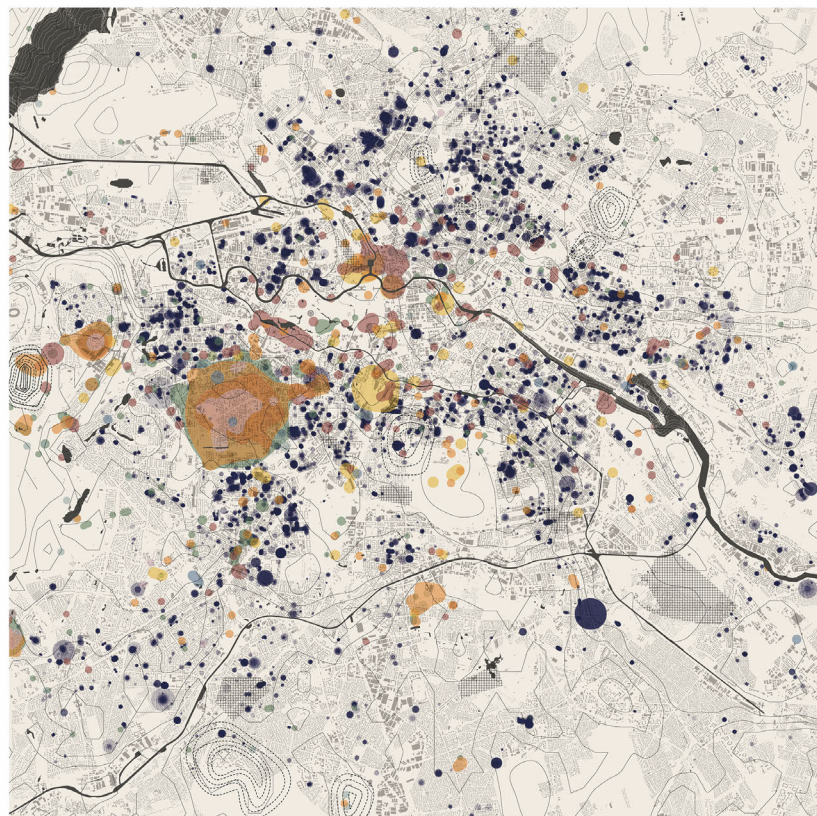
Changhuan Xu,  
Yunfang Xu, Xiaowei  
Xue  
2022

Intervention in  
Tempelhofer Feld  
Berlin





TIMETABLE		6 <sup>TH</sup> - 10 <sup>TH</sup> JULY 2026	
		SEMINAR	STUDIO TUTORIAL
6 <sup>th</sup> Monday	Urban	Data-Driven Design Presentation	Capturing Data
7 <sup>th</sup> Tuesday	Analysis	Making Places for People	Visualising Data
8 <sup>th</sup> Wednesday		The Right to the City	Urban Analysis
9 <sup>th</sup> Thursday	Urban	The Nonhuman City	Urban Insights and Narratives
10 <sup>th</sup> Friday	proposal	The Walkable City	Final review and presentation



Inka Eisma, Jodie  
Horsburgh, Eilidh  
Mckenna

2023

Landscapes of  
Biodiversity Care in  
Central Berlin

#### CARE FOR TREES

Wanted: Trees by Species and Frequency of Watering  
— High amount of water  
— Low amount of water  
— No watering  
— No watering (regularly)  
— No watering (irregularly)

#### TOPOGRAPHY

— Urban landscape  
— Rural landscape

#### DEVELOPMENT ZONES

— Urban landscape  
— Rural landscape  
— No watering (regularly)  
— No watering (irregularly)

#### WILD PLANTS: PLANTAE RUDERALES

Wild plant species from the area

