

Study Programmes Urbanism and Architecture
Guidelines for your Master's Thesis

The Chair of Urban Development welcomes individually developed proposals for master's theses in the Urbanism and Architecture programmes, and readily (co-)supervises master's theses in related courses if they are thematically suitable. Please do not hesitate to contact us! The main research areas described in the employee profiles on our website can help you to assess the suitability of the chair for your proposal and to find suitable contact persons.

Before working on a master's thesis at the Chair of Urban Development, a preparatory seminar "Reflexion" worth 3 ECTS must be completed in the previous semester, ideally at the Chair of Urban Development as well. To do this, register in TUM-Online before the first meeting date at the beginning of the semester. You can find the currently planned dates and the responsible contact persons for the seminar on TUM-Online and on the course overview on our website.

This handout applies for master's theses at the chair of urban development. Other chairs' recommendations can deviate.

1. Preparation

In the seminar "Reflexion", important fundamentals of scientific work are refreshed in several inputs, and the planned thematic and methodical details of the planned master's thesis are specified in three discussion rounds of lecturers and participants. The seminar leads to the preparation of a written proposal. The seminar is part of the module of the same name in the Urban Studies course and the "Methodical Development of Research Questions" module in the Architecture course.

The proposal should not exceed 10 pages (font size 12; Arial; 1.5-spacing; excl. figures). It should contain the following sections: introduction, question and hypothesis, (own) previous research, state of research, planned approach and methods, time schedule, potential risks during the process and mitigation options, literature list, appendix (if applicable).

In the presentation, the students, in consultation with their supervisor, determine the content of the work, the methodological approach, and the exact requirements.

Reflexion Module Sequence at the Chair of Urban Development

Courses	Requirements for students
Session 1: Introduction to the module Reflexion Session 2-4: Methodological inputs	Development of approach to Master's thesis
Session 5: Presentation of topics and state of research by students 15 minutes presentation, 15 minutes feedback	
	Development of research questions and hypotheses
Session 6: Presentation of research questions and hypotheses by students 15 minutes presentation, 15 minutes feedback	
	Development of research methodology
Session 7: Presentation of research methodology by students 15 minutes presentation, 15 minutes feedback	
	Development and submission of thesis proposal
	Revision and resubmission of thesis proposal, if applicable

2. Content orientation

At the Chair of Urban Development, two different thesis content orientations are possible:

- a) A **theoretical-analytical thesis** with explicit relevance to spatial concerns, which develops *new scientific knowledge* in the field of Urbanism,
- b) A **synthetic design-oriented thesis** which, based on a problem analysis, generates *new, subject-specific knowledge* about possible solutions to a concrete spatial problem.

A **theoretical-analytical thesis** is subject to the general rules of scientific work. Theoretical Master's theses are possible with or without an empirical study. Empirical studies, such as case studies, must be referenced to theory in order to contribute to generalized knowledge. Despite being theoretical-analytical, such theses must always show a clear reference to space. The relevance of the chosen topic for the practice of urbanism shall be demonstrated.

A **synthetic design-oriented thesis** would include, for example, the development of urban design concepts, spatial strategies, concepts for urban and regional development, future scenarios, action programs, etc. For a synthetic design-oriented thesis, the uniform requirements of different spatial scales and the varying problem situations between regions and countries are not given a uniform format because of the interdisciplinarity of the course, and the diversity of the current problems of cities and regions. It is part of the mission of the thesis to justify the chosen design format and to reflect on the background of contemporary planning practice. Chapter 4 provides guidance on the structure and content of a synthetic design-oriented thesis. Theses in the Architecture programme are usually of this type.

3. Formal requirements

The thesis can be written in German or English. The submitted thesis must be linguistically uniform.

The Master's thesis is usually an individual work, but in justified cases, a group work is possible. In this case, the individual contributions within the final work have to be clearly attributable. Attribution should be ensured using objective criteria, e.g. by chapter, page range, or content focus.

The Master's thesis may include results from preparatory projects, which, however, must be declared for grading purposes.

The choice of format and style should support the message of the thesis. A font size between 10 and 12pt, and a line spacing between 1.15 and 1.5 are recommended. Running text should be formatted in a serif font, as this increases readability.

Submission requirements

Text document

A text document of the Master's thesis is obligatory. It has to be handed in in two identical printed instances. The scope of the written version will vary according to the content of the thesis.

A **theoretical-analytical thesis** should normally include:

- A maximum of 160,000 characters (including spaces), corresponding to about 50 pages of text according to the TUM format template for scientific reports, in addition to
- figures and tables,
- cover, abstract, table of contents, list of images, bibliography, as well as appendix.

A **synthetic design-oriented thesis** should normally include:

- Minimum 20,000 characters (including spaces), corresponding to approximately 6 pages of text
- figures and tables,
- cover, abstract, table of contents, list of images, bibliography, as well as appendix,
- plans and posters (see below)

Plans / Posters

The number of plans / posters varies depends on the content of the thesis. It is to be determined in agreement with the supervisors. In the case of a theoretical-analytical thesis, at least one poster DIN A1 is recommended. For a synthetic design-oriented thesis, at least eight DIN A1 plans / posters should be produced.

Posters must bear the name(s) of the authors. Posters must be comprehensible through the targeted use of intelligible visual language, concise headings, and a short explanatory text, even without oral explanations. The typical space for posters during the final presentations is 8 boards with a width of 119 cm and a height of 179 cm.

Model

appropriate to the thematic orientation and chosen design approach of the thesis, the presentation of a model is recommended.

Presentation

The public presentation of the thesis in a 15-minute lecture is obligatory. All Master's theses for the Urban Studies will be presented on the same date. During the presentation, supporting digital slides and/or posters and, where applicable, a model can be used.

Further optional submissions

The department of Architecture typically supports the preparation of posters with unified layout, and a documentation brochure on all theses. The chair responsible for the centrally managed Master theses at the department provides information and layout templates.

4. Supervision

The Master's thesis is an independent work. A professor and typically one additional team member of the chair is available for feedback, if desired. At the beginning of the semester, three consultations dates are announced for this. Participation in the consultations is voluntary for students.

5. Development period and submission

The development time for the Master's thesis is six months. The Master's thesis is considered as failed if it is not submitted on time without acknowledged valid reasons. An extension of the deadline is only possible with a medical attestation.

The submission of the Urbanism master's theses supervised at the chair of urban development takes place at the deadline announced in the beginning of the semester, at the chair. For theses in the Architecture programme, separate rules, announced by the dean of studies, may apply.

The written version and printed plans are to be handed in twofold, together with the model, if applicable. A digital version of the written version and plans has to be submitted via Moodle or E-Mail. The students must bring all submissions from the chair to the final presentation location independently on a date separately announced before the final presentation. The presentation files must be submitted separately on a later date. In case of digital presentations, different individually determined regulations may apply.

When submitting the thesis, students have to declare in written form that they prepared all submissions personally and did not use other resources than those indicated. A template for this declaration can be found on the website of the Architecture department.

6. Grading

Only final submissions are graded. These include the written version, plans / posters, and, if applicable, presentation slides and model. The grade is determined by the supervisor. Feedback from other university lecturers can be taken into account in the grading.

Theses graded as failed are re-examined by a second examiner. The scores of both examiners are averaged; the average is rounded to the next better grade if it is in between two grade steps.

If the Master's thesis has not been rated as sufficient, it can be repeated once with a new topic. It must be re-registered at the latest six weeks after the decision on the result.

7. Guidelines for a *synthetic design-oriented* Master's thesis

The structure and content of the Master's thesis is to be developed by the students themselves. The following is a list of possible criteria, which provide **guidance** on the structure and content of the thesis. **They do not constitute a mandatory checklist.**

The synthetic-design-oriented Master's thesis interlinks three content components: (1) Problem analysis, (2) Design – in the sense of a problem solving – (3) Reflection on the design approach. Problem analysis and design generate *case-specific* knowledge. Reflection on methodology allows discussion of the design approach in the individual case, and learning from this in order to *extrapolate to other cases*.

a) Problem analysis

- **Problem analysis** precedes the design. The analysis can take place within the framework of the thesis or in an analytical Master's project or seminar before the thesis.
- The analysis reveals the **problems and causal chains** in the current situation, which must be solved.
- The analysis investigates how **spatial preconditions** interrelate as causes or consequences of the problem at **different spatial scales**.
- The problem analysis contains a **temporal orientation** to past or future developments.
- The author develops **clear terminology** for describing the problem.

b) Design

- Based on the problem analysis, the Master's thesis develops a design.
- Students develop a **hypothesis** that relates the chosen design as a solution approach to the problem. Hypothesis and design operate **spatially, procedurally and selectively** – hence strategically.
- **Spatial**: The spatial elaboration can be carried out with a different focus, urban developmental design-based and/or functional-spatial.
 - **Urban developmental design-based**: The design makes statements regarding desired **morphological-spatial structures** and **spatial qualities**, and shows how these are related to **different spatial scales**. Spatial design strategies should always pursue approaches to solutions along two dimensions: Designs are first of all conceivable and implementable thanks to their **architectural-urban appositeness**; On the other hand, designs should have the capacity to respond to a variety of changing requirements and medium- or long-term developments with a contingency planning component.
 - **Functional-spatial**: The design – in the sense of solving a problem – makes quantitative, qualitative and spatial statements regarding the desired **uses and users**. It shows how these **spatial ranges** have different **spatial scales**. In the solution, **supply** and **demand** are spatially reshaped according to urban functions.
- **Processual**: The design as a solution to a problem includes a temporal perspective on two levels.

- The design contains a **developmental perspective**. Instead of a target state to be achieved, a **transformation process** to change the spatial and functional structures and qualities is described. It is necessary to show how in this process qualities and quantities, space and function, interact at different levels of scale in order to make a decisive contribution to the solution of the problem.
- The **steering perspective** shows which actors can contribute to the implementation of the design, i.e., the **production logic** of the actors.
- **Selective**: The problem described in the analysis can rarely be comprehensively dealt with and solved. Design and problem solving are therefore highly selective – spatially, thematically or instrumentally. This shows how the design **addresses the overarching problem** by means of selective measures.
- Design and solution have a **clear relation to the analysis** and demonstrate understanding of the value of this. From the analysis, **interdependencies** are developed that show how the selective design contributes to the improvement of the overarching problem.
- In the design, the author shows an **evaluative attitude** to the desired spatial qualities and develops clear **terminology**.

c) Reflection on the design approach

The nature of the design is deliberately formulated in an open way. The Master's thesis therefore contains a **reflection** on the chosen **design approach** and the underlying **design methodology**.

- **Design approach**: Which spatial solution is selected? How do morphology, function and process interact? What is the role of the time axis? Which existing planning instruments does the design incorporate? What kind of selectivity is chosen? What role do urban structure and urban space play?
- **Design methodology**: How do problem finding, naming a problem, and finding a design solution interrelate? What new knowledge has the process of designing and solution finding generated? How did sketches and models support the design and meaningfully contribute to its articulation?

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