

Guidelines for Bachelor & Master theses in Sustainability Transition Policy

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All students at the FAU may write their thesis at the Sustainability Transition Policy chair if their research falls among the topics and methods in focus of our work. If we have the capacity to advise you, we are open to discussing a topic and research question with any student who has taken one or more of our courses. For anyone else, we must first see that you are prepared to write a thesis at our chair, which must be decided case by case.

We advise both Bachelor and Master theses related to energy and climate policy topics. In specific cases, topics relating to the broader sustainability policy and politics field may work. Your advisor will be a person in the STP group well versed with either the topic or the method of your thesis (or both). For Master theses, only STP colleagues with a PhD degree are possible advisors.

We are open to students' own topic and research question suggestions but also publish open topics connected with our own research on the web page. If you propose your own topic, remember to contact us early, because very likely it will take some time to polish the first ideas into workable research questions with appropriate methods.

There are two strict requirements for writing a thesis with us. These requirements are the same for Bachelor and Master students, although the contents and expectations differ.

- First, all students must write a **thesis proposal**, outlining the suggested work. This proposal must be approved by the advisor. Before this has happened, your application to write a thesis with us is not yet accepted. Typically, writing a good and workable proposal takes 1-2 iterations with the advisor, so start well ahead of any deadlines to be sure that it is done on time. You will find guidelines for this below. It is the student's responsibility to ensure that all formalities are finalised in time for registration. Expect the process between first contact and an approved research proposal to take 3-4 weeks; if you propose your own topic, it can take longer.
- Second, all students must participate in the **STP Thesis Seminar** and present their work there. Each semester there are two courses (Thesis seminar Bachelor and Thesis seminar Master) in Campo, and you must register for the appropriate one. See the seminar outline for your semester (→ www.transitionpolicy.rw.fau.de).

This seminar will take place in two blocks, typically in the first week of the semester and in the middle of it, with two short sessions between. These blocks will take about 2x5 hours (and likely less), plus the open sessions (2x1.5 hours). These seminars address issues that arise for all students, including evaluation criteria but also the process and principles of writing (e.g. how do I structure my thesis; what's the point of a Discussion section; how do I cite properly) but also making sense of and communicating findings (e.g. how do I communicate quantitative results; how can I synthesise qualitative findings while staying within reasonable page number limits).

In the open sessions, we will discuss problems and solutions within the group of students and advisors. Most problems arising are not specific to each thesis, and hence much can be learned by engaging with each other also during thesis writing. As participation is mandatory, the issues that we cover in the seminars will not be discussed on a person-by-person basis with advisees outside of the seminar hours.

Both the proposal and the seminar are non-negotiable, and both are designed to help you, not cause additional work or other problems.

Writing a thesis proposal

To be accepted for a thesis with STP, you *must* prepare a thesis proposal, outlining what you want to do, why that is relevant and how you want to do it. This text does not have to be long (maybe 1-3 pages). Each thesis and thus proposal is different, but each must hold three things.

- A) a **problem** to address. This is the “topic” of your thesis, also describing why your work is interesting and relevant. At the STP chair we do interdisciplinary work, led by a curiosity about how to solve societal problems. It is essential to connect your thesis to actual problems. These can be relatively broad questions, such as “How do we increase bike use in Bavaria?” “How can we build more wind power faster in Germany?” or “Is carbon pricing a useful climate policy instrument in developing countries?” This could be a theoretical problem but will more often be an empirical one. Deciding a topic is necessary, but it is not workable as the basis for your thesis.
- B) a specific **research question (RQ)**. This is NOT a “topic” or your high-level problem question (as outlined in the previous point). Your research question is a specific question describing a causal relationship of some kind, with variables hinted or explicit in it. Doing this well is very important, and also difficult: quite possibly, it is the hardest part of the entire thesis. Yet, if you do not do it well, you will run in to problems during your work, because you are not exactly certain what you are going to do and what question to answer.

So, for example, “What do Germans think about wind power?” is a topic, but NOT a research question, because it is a journalistic question: interesting, yes, but only if you’re interested in that exact question and topic. It does not build generalisable knowledge and give insight into why opposition/acceptance happens, or what to do about it.

Related RQs could be “What drives opposition against wind power in Germany?” or “How do different policies (monetary compensation, longer setback distances to buildings, or removal of aviation protection lights) affect acceptance of wind power projects in Germany?”. These questions clearly indicate causal mechanisms and allow for answers that are relevant to anyone interested in acceptance, or in the energy transition in Germany, or energy transitions more in general.

- C) a **Method** that shows how you want to answer your RQ. Here, a sketch is enough: we do not need all details (yet), but the description must be sufficiently detailed for us to understand what you want to do, assess whether it addresses the posed research question, and appears doable within the frame – especially time – of a thesis. A useful method description must hold three things:

1) **what will you observe:** your data. Every empirical thesis will be based on data, which may be qualitative or quantitative, or both. This will be the basis for everything. Such data may be “attitudes towards wind power in Germany”, “setback distances for new turbines”, and “monetary compensation” (if your RQ is about how policies affect wind power acceptance in Germany).

But even a conceptual thesis will be based on data: you will base your argumentation on something, maybe some literature or philosophical strain or whatever: that will then be your “data”.

2) **how will you observe that data:** data sources, data gathering and preparation. This describes your data sources, and is intended to show, before you start working, that the data you need exists or can be generated. If you work with existing data, derived by others, this will be links and descriptions of that data, showing what it is and where it exists.

If you must derive data yourself, for example through surveys or modelling, you must show a realistic plan for how you do so. In a BA or MA thesis you will not have the resources to do a representative survey of wind power acceptance in Germany, but you may be able to speak to a smaller sample of people, or you may be able to work with already existing survey data.

If your approach requires adaptation of an existing dataset, you must describe how that preparation will be done and what the effects on the data are. Especially for quantitative theses, this is essential: even the best method will not work if the data is not available, too coarse, or not reflecting what you think it reflects.

3) **how will you evaluate that data to answer your RQ:** your method, showing how you determine whether the observations are large/small, $y=5.14$, red/green, yes/no, etc. This is the most difficult part and the one most often forgotten – but without it, we cannot know how you will answer the question, whether you will do so systematically and transparently, or just by guessing. Sometimes, the evaluation is trivial: larger emission reductions tend to be better than smaller ones, for example. But often, it is not: for example, smaller emission reductions may be *better*, if immediate larger emissions reductions would trigger lock-in into emitting technologies (e.g. it may be better to run a strongly polluting lignite power station a bit longer and then eventually replace it with a wind farm than to close it immediately and replace it with a natural gas station).

If your method is qualitative, the method as such is often not super complex. Still, you must be specific and say how you will do your analysis. For example, what will you code and how will you evaluate the coded data? OK, you will do process tracing, but how? OK, you will do a (systematic) review, fine, but with which variables exactly? And so on. Qualitative research is no less rigorous than quantitative (actually, it's often MORE rigorous!) just because it has less or no mathematics.

If your evaluation method relies on modelling or on statistical analysis, it is essential that you describe the method in detail. This is to *protect you, not to annoy you*: often, statistical analyses are proposed in too simplistic terms (e.g. confusing correlation with causation), and doing a valid analysis can sometimes be very complicated and not necessarily suited for a thesis. Here, we are going to be picky, which is in your interest: the worst that can happen is to realise mid-way that the work you're doing is not feasible.

Thoughts on feasible and problematic methods

Below, we gather some recommendations for topics and methods suitable for theses. These are to be seen as well-meaning thoughts rather than orders. But if you find that you wish to go against the advice below, you must motivate it well and credibly demonstrate that it will be feasible in your particular case, because of some clearly specified reason. One such reason could be that you will do it in the context of one of the STP research projects, and data and/or methods are already present. It can also be that you have demonstrated experience with a specific complicated method, so whereas it may be too hard for most, it will be OK for you.

Methods appropriate for a thesis

The key point is that your proposed work must not only be interesting and relevant, it must above all be doable in the time frame of your thesis. This is why we insist on the proposal.

There are many, many useful and doable methods, so it is not possible to list them all. In the past, we have seen students finish their thesis and get good grades using for example some of the following, very non-exhaustive list of methods:

- simple quantitative methods such as regression analysis
- (more or less systematic) reviews
- process tracing of different kinds
- text coding or other forms of policy (text) analysis, each sometimes flanked by interviews.

Experience of methods that sometimes cause problems

It is not possible to say that some methods are worse than others, or even too complicated for a thesis. However, several methods frequently cause problems for thesis students, because they take too long or it turns out that the student is less prepared and experienced than they thought. Here is a list of four in principle very good and useful methods that nevertheless have caused problems in the past. These are not “forbidden methods” found in the Dark Arts section of the library, but we will look very closely if your proposal is based on one of them and more often than not propose to change the approach.

1. **Large-n surveys**, both to the public and to selected stakeholders, are often problematic for Master theses, and generally unfeasible for Bachelor theses. Because this method requires a large number of responses, it takes long time to gather the data. If a survey has already been done (incl. by someone else, and you re-analyse the data) or is presently running in some context, it may work. Instead, interviews may work better, because they don't require very many respondents (yet, see next point).
2. **Interviews** are a good method for Master theses, IF contacts are already established AND it is not the only source of data. You will not “interview 10-15 representatives at the ministries for energy in Morocco and France”, so don't propose that. Instead, assume that you may be able to do 2-3, at best, and think about how these interviews will enrich some other analysis. It is generally not possible to have interviews as main/only data source for a thesis. For Bachelor theses, interviews are rarely good, because they take too much time for too little information.
3. **Statistical analysis** is a common method, both for Master and Bachelor theses. Often, simple regressions suffice to say something meaningful about a dataset. Definitely go for that! But sometimes, more complicated methods are needed, such as difference-in-difference or other approaches requiring the construction of counterfactuals (e.g. empirical analysis of “what are the effects of Instrument X in country Y?”). This is very complicated, and unless you are already well-versed with them, you should avoid that because of the high risk of getting stranded halfway through. If your (Master) thesis takes place in one of our projects, with a method and data provided by an advisor who commands this particular approach, it can work. Again, it is important to check data availability when you select the method.
4. **Modelling** of different kinds is sometimes useful. But as above, modelling is often very complicated and requires substantial skills (incl. coding skills) to be feasible. For a Bachelor thesis, it is generally not feasible. If your work takes place within an STP project, with existing code and data AND you are experienced with the relevant coding approach and language, it may be feasible for a Master thesis.