

Additional Thesis Requirements for the Neuroeconomics Master's Track.

In addition to the requirements outlined in the official thesis document for the Master's thesis in Economics and Business Economics, the thesis in Neuroeconomics should have a clear focus on Neuroeconomics. This means that:

1. Your research question needs to be relevant for the field of Neuroeconomics. For inspiration on topics that fulfil this requirement you can draw upon what was discussed throughout the Neuroeconomics course, or look into recent reviews in the field of Neuroeconomics in publications geared to provide an overview of a topic or field such as *Nature Reviews Neuroscience*, *Trends in Cognitive Sciences*, or the *Annual Review of Neuroscience / Psychology*. You can use google scholar or pubmed.com as your search engines (for example, by searching for recent articles with the keywords that define your topic best: "trust" and "fMRI", or "social cognition" and "TMS", or specific regions that you are interested in, such as the "ventral striatum", the "anterior insula", or "temporoparietal junction").
2. Your introduction needs to include an overview of relevant theories and literature from the field of Neuroeconomics, with sufficient explanation of the brain systems and neural mechanisms involved in your topic of choice. For this part, it could be useful to draw upon meta-analyses from neurosynth.org to generate neuroanatomical hypotheses.
3. The empirical part of your thesis will likely be a behavioral experiment with around 50 – 100 subjects. It is difficult to conduct a full-blown neuroscience experiment, as experiments involving neuroscientific methods such as fMRI or TMS typically take 2 years from the initial planning stage to execution. Therefore, you should view your experiment as a "pilot" experiment for a future neuroscientific investigation. Pilot experiments are typically conducted at the behavioral level to identify whether an experimental effect of interest exists, before significant amounts of money are spent on neuroscientific techniques. One good way to go about collecting such data is via Qualtrics.com, which is an online platform for conducting questionnaires and simple experiments. The university offers free accounts to its students, so I encourage you to take a look at this platform soon.

4. In your discussion, you should interpret and discuss your findings in terms of what they mean behaviourally, but also in terms of their relevance for Neuroeconomics. In this section it is again important to generate hypotheses at the neural level based on your behavioral results. For instance, if your results demonstrate a behavioral effect, which neural mechanisms do you hypothesize to generate this effect. I expect well-informed arguments in this section that draw upon previous work and meta-analyses (found in literature reviews and on neurosynth).

As an additional tip I recommend to include many figures, for instance to illustrate expected behavioral results and hypotheses. Furthermore, when reading papers from neuroeconomics, you can typically see that tasks are illustrated in a figure, with information on the timing of task events. This is important in a neuroscientific context to illustrate careful experimental design that is optimized for the neuroscientific method used in the paper. It is also a good idea to include a figure from neurosynth to illustrate your expected neuroanatomical hypotheses.