

Title: An Introduction to Cognitive Modelling

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Abstract:

In this course, we will use a combination of lectures, discussion, and hands-on exercises to give participants an overview of what cognitive modelling is, how it can be used to advance psychological theories, and the tools necessary to accomplish that goal. We will discuss some of the conceptual issues surrounding cognitive modelling, namely, how it differs from statistical modelling, how they differ from verbal theories, how one goes from a verbal theory to a formal model. We will also introduce some of the various technical methods needed to do computational or mathematical cognitive modelling, including parameter estimation, model evaluation, and model selection (from both frequentist and Bayesian perspectives). Throughout, we will try to relate these techniques and skills back to the bigger question of how these tools can be used to advance theory development and testing. All of this content will be presented using a small number of specific cognitive models (e.g., evidence-accumulation models).

Prerequisites:

Prerequisite knowledge includes: Familiarity with R software, and some basic familiarity with Bayes and Bayesian concepts.

Assignment: Active participation

Credits: 3 workshop days