

# Position opening: Ph.D. student in psychology focusing on psychometrics

We are seeking a new doctoral candidate (Ph.D.) in psychology and psychometrics at the [Department of Psychology](#) and [Institute of Psychological Research](#), Faculty of Social Sciences, Masaryk University, Brno, Czech Republic, to join our research team from September 2023. The Ph.D. project should focus on the **item response scale format** in general or on a topic related to the research goals described below. The part-time position is funded partly by a tax-free doctoral stipend and partly by the research project (33.500 CZK/month in total). The student will be supervised by [doc. Stanislav Ježek, Ph.D.](#), and co-supervised by [Hynek Cígler, Ph.D.](#)

## Research topic

We recently won a three-year research grant from the Czech Science Foundation (GAČR) *Response -scale format effects on the psychometric parameters of items* ([GA23-06924S](#)). Self-report measures of attitudes and personality characteristics often use items with Likert-type response scales. Such response scales can differ in several formal attributes – number of options, verbal anchors, their extremity, or orientation. These may affect reliability and validity of responses and total scores and directly affect measurement quality. For better understanding of the response process, we proposed an explanatory psychometric model allowing to investigate the differences in cognitive processes in responding to different response scales. The proposed model accommodates for inter-individual differences in response-scale perception and can model several response-scale attributes simultaneously. We will test the model in a series of online experimental designs manipulating response-scale attributes. The results can be used for equating measures using different response scales, selection of optimal scale format in the development of psychological measures, or more precise reliability estimation.

## Requirements

- The applicant should have obtained their master's degree in psychology, sociology, statistics, quantitative methods, linguistics, or a related fields before September 2023.
- Good general methodological and statistical skills.
- Good psychometrics skills, an ideal candidate would have both theoretical knowledge and some practical experience in test development or psychometric analyses.
- Skills in R programming or ability to learn it quickly.

These additional skills are an advantage:

- Familiarity with a generalized linear mixed model (GLMM), Item Response Theory (IRT), factor analysis (EFA, CFA), and structural equation modeling (SEM).

- Advanced skills in R programming, including GitHub, RMarkdown, package development, and similar.
- Experience with Mplus or similar advanced statistical software.
- Experience with Bayesian Cognitive Modeling and Bayesian estimators.
- Interest in epistemological and philosophical aspects of measurement in social sciences. Cognitive psychology orientation is welcome, too.

However, this is still an offer for a Ph.D. position so that some skills can be acquired during the course of the study. Other requirements are associated with [general requirements](#) for Ph.D. applications.

## Proposals

We offer the possibility to join the psychometric team and collaborate on an exciting research topic highly relevant to advancement in psychology and social sciences. This is a combined research and study position. The successful applicant will prepare online and offline research designs and data collections, analyze the data, write reports and scientific papers, and prepare their doctoral thesis. However, if the successful applicant is interested, we also offer possibilities to teach undergraduate students (small involvement in teaching is the mandatory part of the Ph.D. study). We also provide the opportunity to attend international conferences with results of the project.

The position is funded by (1.) a stipend for a full-time Ph.D. student (15.000 CZK/month, not liable to tax) during the whole study and (2.) within the research project (18.500 CZK/month gross, half-time workload) during the first two and half years (until December 2025). The project part of the funding could be prolonged from other sources if we secure follow-up grants. We expect a successful applicant to be four days per week in the office. More information about work at Masaryk University is [available here](#).

## How to apply

The application deadline for Ph.D. submissions to our faculty for the Fall semester of 2023 is **April 30, 2023**. More information about the study: [in English](#)<sup>1</sup> or [Czech](#).

However, you are expected to discuss your interest before the official application. Please, approach the principal researcher Hynek Cígler at [cigler@fss.muni.cz](mailto:cigler@fss.muni.cz) before April 16 to select the proper Ph.D. program, discuss the specific research topic, and obtain an agreement from the future supervisor. Please, send him your CV and a short motivation letter.

This is not an official job offer. We are promoting the Ph.D. study at our department and offer the successful applicant the possibility to join our research team. You must be approved by the supervisors (dr. Ježek and dr. Cígler) and then accepted by the admissions committee.

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<sup>1</sup> The English Ph.D. program is subjected of the tuition fee. However, this fee could be compensated by a stipend. For more information how to handle the fee, ask Hynek Cígler at [cigler@fss.muni.cz](mailto:cigler@fss.muni.cz).