

Masaryk University	
Faculty	Faculty of Science
Procedure field	Mathematics - Applied Mathematics
Applicant	Mgr. David Kraus, Ph.D.
Applicant's home unit, institution	Faculty of Science, Masaryk University
Habilitation thesis	Topics in Functional Data Analysis
Board members	
Chair	prof. RNDr. Gejza Wimmer, DrSc. <i>Faculty of Science, Masaryk University</i>
Members	doc. PaedDr. RNDr. Stanislav Katina, Ph.D. <i>Faculty of Science, Masaryk University</i> doc. RNDr. Arnošt Komárek, Ph.D. <i>Faculty of Mathematics and Physics, Charles University in Prague</i> doc. RNDr. Eva Fišerová, Ph.D. <i>Faculty of Science, Palacký University Olomouc</i> Prof. Siegfried Hörmann <i>Institute of Statistics, Graz University of Technology, Austria</i>

Evaluation of the applicant's scholarly/artistic qualifications

The main scientific contributions of Dr Kraus can be divided into three areas. His main research and the topic of his habilitation thesis is settled in the area of *functional data analysis (FDA)*. In parallel, he is also active in *medical statistics* and holds four recent publications in international medical journals (all of them Q1) where he was responsible for the statistical analyses. Dr Kraus has gained substantial international experience in highly renowned Swiss institutions. Hence, he clearly fulfils the scholarly qualifications for a habilitation procedure.

Conclusion: The applicant's scholarly/artistic capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Mathematics - Applied Mathematics.

Evaluation of the applicant's pedagogical experience

Dr Kraus has a broad teaching portfolio including a variety of courses in probability and statistics. He is teaching at both master's and bachelor's levels. Moreover, he has supervised several bachelor and master's students. Thus, Dr Kraus has substantial pedagogical experience which clearly justifies the habilitation procedure. He can convince not only with the number of given courses but he also possesses excellent pedagogical skills.

Conclusion: The applicant's pedagogical capabilities **meet** the requirements expected of applicants participating in a habilitation appointment procedure in the field of Mathematics - Applied Mathematics.

Habilitation thesis evaluation

FDA is devoted to an increasingly important statistical problem, which is dealing with data that can naturally be viewed as curves or more general data objects defined on a continuum (e.g., grey-level images, fMRI scans, etc.). Its relevance comes from the fact that collecting and storing data in an almost continuous way (think of tick-data) is becoming more and more common. This is reflected by an increasing number of related topic sessions at several international conferences or meetings entirely devoted to FDA.

It is not exaggerated to say that the topic of Dr Kraus's habilitation thesis is within a very active, modern, and important field in statistics. The thesis comprises five selected papers, two of them single-authored. All these papers have appeared in Q1 journals. In fact, along with 'The Annals of Statistics' the chairman of the board rates these specific journals (Biometrika (2x), Journal of the Royal Statistical Society: Series B, Journal of the American Statistical Association and Journal of Multivariate Analysis) as the top journals in the field. Even if the journal selection speaks for itself, we want to highlight that the substance in both theory and application is standing out in Dr Kraus's work. His papers are motivated by problems in a medical or biological context, e.g., how to deal with missing segments in heart rate profiles or understanding of the mechanical properties of the DNA molecules. He then develops statistical tools which help to address the problems in a scientifically rigorous way. His methodological contributions are of high theoretical and technical quality. Hence, there is absolutely no doubt that Dr Kraus's habilitation is of an extremely high standard and on an international top level.

Conclusion: The applicant's habilitation thesis **meet** the requirements expected of habilitation theses in the field of Mathematics - Applied Mathematics.

Secret vote results

Voting took place: electronically

Number of board members		5
Number of votes cast		5
of which	in favour	5
	against	0

Board decision

Based on the outcome of the secret vote and following an evaluation of the applicant's scholarly or artistic qualifications, pedagogical experience and habilitation thesis, the board hereby submits a proposal to the Scientific Board of the Faculty of Science of Masaryk University to **appoint the applicant associate professor** of Mathematics - Applied Mathematics.

In Brno on 04.03.2022

prof. RNDr. Gejza Wimmer, DrSc.