

# Gulsah Gurkan

Applied Statistician | Psychometrician | Data Scientist



## EDUCATION

2021

### PhD, Measurement, Evaluation, Statistics, and Assessment

Boston College

📍 Chestnut Hill, MA

Dissertation: "From OLS to Multilevel Multidimensional Mixture IRT: A Model Refinement Approach to Investigating Patterns of Relationships in PISA 2012 Data"

Committee: Henry Braun (chair), Matthias von Davier, Michael Martin, Zhushan Li

2011

### Integrated BSc. & MSc., Teaching Physics

Bogazici University

📍 Istanbul, Turkey

(Dual Degree in Physics and Secondary School Science & Mathematics Education)



## PROFESSIONAL EXPERIENCE

Present  
|  
March  
2021

### Kaplan North America

Psychometrician

📍 Remote

- Leading and executing projects to evaluate the efficacy of online test preparation products on academic and career outcomes.
- Building statistical models and communicating recommendations to product leaders for improvement.
- Developing programming and documentation in R and R Markdown to automate data processing, analysis, and reporting procedures.
- Providing expertise for research design and advanced statistical modeling techniques primarily used in quasi-experimental design.

February  
2021  
|  
September  
2020

### Boston College

Graduate Statistical Consultant (Research Services)

📍 Remote

- Provided consultations and tutorials to faculty and students from various departments to support their statistical computing and quantitative research.
- Assisted with selecting methodologies, planning and performing statistical data analysis, data management, and statistical computing.

Graduate Assistant (Institutional Research and Planning)

- Assisted with analysis and reporting of data from campus-wide surveys, which were used to monitor trends and provide feedback about various programs and campus issues.
- Automated data cleaning and wrangling processes for annually published internal dashboards.

September  
2020  
|  
July 2020

### uAspire

Chewning Research Fellow

📍 Remote

- Designed and executed research projects to examine the organization's impact on college affordability/access and advance their learning for further program development and implementation.
- Employed data from multiple databases, conducted statistical analyses, and presented research findings to diverse audiences.

Summer  
2020

### Educational Testing Service

Research Intern

📍 Princeton, NJ

- Proposed project: The investigation of alternative RMSD statistics for international large-scale assessments. – Canceled due to COVID-19.

## Contact

✉ [gurkangulsah@gmail.com](mailto:gurkangulsah@gmail.com)

🌐 [gulsah-gurkan.com](http://gulsah-gurkan.com)

🐦 [@Gulsah-G](https://twitter.com/Gulsah-G)

in [@GulsahGurkan](https://www.linkedin.com/company/gulsah-gurkan)

🐦 [@GulsahGurkan](https://twitter.com/GulsahGurkan)

## Skills

### Areas of Expertise:

Quantitative methodology  
Advanced statistical modeling  
Experimental design  
Causal inference  
Psychometrics  
Survey design and research

### Computing:

**Statistical:** R, SPSS Syntax, HLM, mdltm, LISREL, IRTPRO, WINSTEPS.

**Databases:** SQL, RMySQL, GitHub.

**Survey platforms:** Qualtrics, Google Forms.

July 2020   September 2015	<b>Boston College</b> <i>Research Assistant (Center for the Study of Testing, Evaluation, and Educational Policy)</i> • Conducted quasi-experimental studies employing both longitudinal and cross-sectional data from complex survey design studies. • Analyzed data using various procedures such as generalized linear models, multilevel models, cluster analysis, inverse probability weighting. • Conducted psychometric analyses to develop and validate instruments measuring both cognitive and non-cognitive constructs. • Automated data analysis and reporting procedures in R and R Markdown to be shared with stakeholders. • Assisted with organizing a 2.5-day conference and interactive workshop on the challenges with measuring hard-to-measure constructs.	📍 Chestnut Hill, MA
Summer 2019	<b>Kaplan Test Prep</b> <i>Psychometrician Intern</i> • Conducted an empirical simulation study to examine the feasibility and sustainability of automated test assembly methods to personalize online assessment products to each user's needs. • Developed an R package for automated test assembly (' <a href="#">ata</a> ' available on CRAN R repository).	📍 New York, NY
Summer 2018	<b>New York City Department of Education</b> <i>Data Analyst   Education Pioneers Summer Fellow</i> • Built a dashboard to communicate the impact of a professional development program to 45 superintendents and 9 Field Support Centers in New York City. • Developed visuals in R including mapping attendance data to geographically demonstrate the participation rates by NYC districts to be shared externally. • Contributed to the team's ongoing work to refine the program logic model and design evaluation studies.	📍 New York, NY
Summer 2017	<b>Dublin City University</b> <i>Research Associate</i> • Developed and validated a scale measuring students' physical and emotional well-being. • Conducted psychometric analyses employing factor analytic approaches and Rasch modeling.	📍 Dublin, Ireland
June 2015   June 2012	<b>Educational Volunteers Foundation of Turkey (TEGV)</b> <i>Measurement and Evaluation Specialist</i> • Coordinated measurement and evaluation studies to determine the effectiveness of more than 10 education programs across 30 cities in the underdeveloped provinces of Turkey. • Developed measurement tools such as student questionnaires, interview and observation protocols. • Collected, analyzed, and reported data for the purposes of organizational monitoring. • Devised research briefs and reports on various aspects of education policy issues in Turkey. • Represented the organization in "Volunteerism: Measuring Global Impact II" workshop that took place in June 2015 in Nairobi, Kenya.	📍 Istanbul, Turkey



## TEACHING EXPERIENCE

February 2020	<b>Fordham University</b> <i>Workshop Host</i> • Automated Test Assembly in R (with Michael Chajewski)	📍 New York, NY
May 2019   September 2018	<b>Boston College</b> <i>Teaching Assistant</i> • Multivariate Statistics (Instructor: Zhushan Li) • Psychometric Theory II – Item Response Theory (Instructor: Zhushan Li)	📍 Chestnut Hill, MA



## SOFTWARE / STATISTICAL PACKAGES

- **Gurkan, G., Chajewski, M. (2020).** ata: Automated test assembly. (Version 1.1.0). R software package: The R Project for Statistical Computing.

## SELECTED PUBLICATIONS AND CONFERENCE PRESENTATIONS

- **Gurkan, G.,** Benjamini, Y., Braun, H. (2021). Defensible inferences from a nested sequence of logistic regressions: a guide for the perplexed. *Large-scale Assessment in Education*, 9(16). doi: 10.1186/s40536-021-00111-7
- **Gurkan, G.,** von Davier, M., Braun, H. (2020). Accounting for measurement error and clustering in cross-cultural assessment data. *Presentation given at the (Virtual) International Meeting of the Psychometric Society.*
- **Gurkan, G.,** von Davier, M., Braun, H. (2020). On the cross-country heterogeneity of within-country bivariate relationships in international large-scale assessments: understanding, evaluating and adjusting for the contributions of measurement error and clustering. *Paper accepted to the 12th Conference of the International Test Commission, in Luxembourg City, Luxembourg.*
- **Gurkan, G.,** Chajewski, M. (2020). Exploring online assessment personalization via automated test assembly. *Paper accepted to the annual meeting of the National Council on Measurement in Education, in San Francisco, CA.*
- **Gurkan, G.** (2019). A multilevel modeling analysis to investigate the factors affecting Turkish students' scientific literacy performance in PISA 2015. *Presentation given at the annual meeting of the New England Educational Research Organization, in Portsmouth, NH.*
- **Gurkan, G.,** Luna Bazaldua, D., & Braun, H. (2018). Testing dynamic complementarity in educational opportunities to accumulate relevant human capital. *Presentation given at the annual meeting of the National Council on Measurement in Education, in New York, NY.*
- **Gurkan, G.** (2017). Psychometric properties of Learning to Teach for Social Justice Practices scale. *Presentation given at the annual meeting of the New England Educational Research Organization, in Portsmouth, NH.*