DEPARTMENT OF EDUCATION AND SPECIAL EDUCATION

QRM1803, Measurement: Theory and applications in educational research, 7.5 credits

Mätlära: Teori och tillämpning i utbildningsvetenskaplig forskning, 7,5 högskolepoäng

Third-cycle level / Forskarnivå

Reading and reference list for QRM1803

This reading and reference list was confirmed by Department of Education and Special Education 2025-02-11, and is valid from Spring semester 2025.

The reading and reference list is available on the next page.

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QRM1803, Measurement: Theory and applications in educational research, 7.5 credits
QRM1803, Mätlära: Teori och tillämpning i utbildningsvetenskaplig forskning, 7,5 högskolepoäng

Third Cycle/ Forskarnivå

The literature list is confirmed by the Department of Education and Special Education at 2018-06-26, revised 20190930, 20211210, 20221109, 20231210 to be valid from 2025-01-13.

Literature

Hambleton, R. K., Swaminathan, H., & Rogers, H. J. (1991). *Fundamentals of item response theory*. *Measurement Methods for the Social Science: Vol. 2*. SAGE Publications, Inc. (Selected chapters; pdf will be provided)

Kline, T. (2005). *Psychological testing: A practical approach to design and evaluation*. SAGE Publications, Inc. https://methods.sagepub.com/book/psychological-testing https://doi.org/10.4135/9781483385693 (Selected chapters; online access at GU library)

Koretz, D. (2008). *Measuring up: What educational testing really tells us*. Harvard University Press. (Online access at GU library)

Wedman, Jonathan, (2017). Reasons for Gender-Related Differential Item Functioning in a College Admissions Test. Scandinavian Journal of Educational Research, (2018), VOL. 62, NO. 6, 959–970 https://doi.org/10.1080/00313831.2017.1402365

Wu, Margaret, Hak Ping Tam, and Tsung-Hau Jen. 2016. *Educational Measurement for Applied Researchers: Theory into Practice*. Springer Singapore. https://doi.org/10.1007/978-981-10-3302-5 (Selected chapters)

+ articles/texts of ca 150 pages

Software

- IBM SPSS - Statistical package for the social sciences, version 20 or later. Most universities and colleges in Sweden offer SPSS to employees and students, either as a site-license or limited volume license
- R – can be downloaded for free from https://www.r-project.org/
- R Studio can be downloaded for free from https://rstudio.cloud/

- RUMM2030 +, Rasch Measurement Tools for Research and Education. https://www.rummlab.com.au/
Participants will be offered a free of charge trial version, distributed at the course.

Extra readings

Andrich, D., & Marais, I. (2019). *A course in Rasch measurement theory*. Springer. https://link-springer-com.ezproxy.ub.gu.se/book/10.1007/978-981-13-7496-8 (Online access at GU library)

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (2014). Standards for educational and psychological testing. Washington, DC: AERA. https://www.testingstandards.net/open-access-files.html

Bergh, D. (2015). Chi-Squared test of fit and sample size—A comparison between a random sample approach and a Chi-square value adjustment method. *Journal of Applied Measurement, 16*(2), 204–217.

Boone W. J. (2016). Rasch Analysis for Instrument Development: Why, When, and How?. *CBE life sciences education*, *15*(4), rm4. https://doi.org/10.1187/cbe.16-04-0148

Debelak, R., Strobl, C., & Zeigenfuse, M. D. (2022). *An introduction to the Rasch model with examples in R*. Chapman and Hall/CRC. https://doi.org/10.1201/9781315200620 (Selected chapters; online access at GU library)

Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. Mahwah, N.J. L. Erlbaum Associates. (Online access at GU library)

Hambleton, R. K., & Jones, R. W. (1993). Comparison of classical test theory and item response theory and their applications to test development. *Educational Measurement: Issues and Practice*, *12*(3), 38–47. https://doi.org/10.1111/j.1745-3992.1993.tb00543.x

Mair, P. (2018). *Modern Psychometrics with R. Use R!* Springer International Publishing. https://doi.org/10.1007/978-3-319-93177-7Majoros, E (2023). Linking the first- and second-phase IEA studies on mathematics and science. *Large-scale Assessments in Education, 11*(14). https://doi.org/10.1186/s40536-023-00162-y

Majoros, E (2023). Linking the first- and second-phase IEA studies on mathematics and science. *Large-scale Assessments in Education, 11*(14). https://doi.org/10.1186/s40536-023-00162-y

Martinkova, P., & Hladka, A. (2023). Computational Aspects of Psychometric Methods (First ed., Vol. 1, Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences). Milton: CRC Press. (Selected chapters) (Online access at GU library)

Pedhazur, E. J., & Pedhazur Schmelkin, L. (1991). *Measurement, design, and analysis: An integrated approach*. Lawrence Erlbaum Associates.

Rosén, M. (2001). Gender differences in reading performance on documents across countries. *Reading and Writing*, *14*(1), 1–38. https://doi.org/10.1023/A:1007995107442

Wiberg, M. (2004). *Classical test theory vs. Item response theory: An evaluation of the theory test in the Swedish driving-license test.* Can be downloaded through this link: https://pdfs.semanticscholar.org/9c50/be14cdab4eab719251871fa5c4f61e5d7808.pdf?_ga=2.266220039.929507363.1571824150-459876704.1571824150 (Links to an external site.)