Matthew J. Sigal, BA (Hons.), MA

Department of Psychology
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Present Position: Doctoral candidate at York University.
Specialization: Quantitative Methods.

Education

2010-present	Degree: Ph.D, Psychology, in progress Specialization: Quantitative Methods Institution: York University, Toronto, Ontario, Canada Advisor: Dr. Michael Friendly Dissertation: *Everything on the table: Demystifying the results of Monte Carlo simulation studies and other complex tables* Minor Area Paper: *Providing scaffolding: An applied analysis on the efficacy of 4U and university level preparatory STEM courses*
2008-2010	Degree: M.A., Psychology Specialization: History and Theory of Psychology Institution: York University, Toronto, Ontario, Canada Advisor: Dr. Michael Pettit Thesis: *APA style: The development of publication standards for American psychology, 1900-1952* Nominated for the Faculty of Graduate Studies Thesis Award
2004-2008	Degree: B.A. (Honours, with distinction), Psychology Institution: Bishop's University, Lennoxville, Quebec, Canada Advisor: Dr. Stuart McKelvie Thesis: *The influence of visual media on fluid intelligence*

Scholarships & Awards

2015	Excellence in Innovation, Multi-Health Systems
2013	Professional Development Fund, CUPE 3903, York University ($400)
2013-2014	Ontario Graduate Scholarship ($15,000)
2012-2013	Queen Elizabeth II Graduate Scholarship in Science and Technology, Ontario Ministry of Training, Colleges and Universities ($15,000)
2012	Professional Development Fund, CUPE 3903, York University ($400)
2011	Certificate of Teaching Excellence, Teaching Assistantship Award, Council of Canadian Departments of Psychology
2010	Research Cost Fund, CUPE 3903, York University ($500)
2008	Graduate Studies Entrance Scholarship, York University ($6,000)
2008	Certificate of Academic Excellence in Undergraduate Research, Canadian Psychological Association
2004-2008	Academic Honour Roll, Bishop's University

Course Directorships

2016, Fall	PSYC 3256: Design and Analysis, Laurentian University, Barrie, ON.
2015, Winter	PSYC 3031: Intermediate Statistics Laboratory, York University, Toronto, ON.
2014, Summer	An Introduction to Data Analysis with R, Continuing Education workshop held at the American Psychological Association conference, Washington, D.C.
2014, Spring	An Introduction to Data Analysis with R, Institute for Social Research, York University, Toronto, ON.
2014, Winter	An Introduction to Data Analysis with R, Institute for Social Research, York University, Toronto, ON.
2013, Summer	An Introduction to Data Analysis with R, Continuing Education workshop held at the American Psychological Association conference, Honolulu, Hawaii.
2013, Spring	An Applied Introduction to SPSS, Institute for Social Research, York University, Toronto, ON.
2013, Winter	PSYC 2020N: Statistical Methods I, York University, Toronto, ON.
2013, Winter	An Applied Introduction to SPSS, Institute for Social Research, York University, Toronto, ON.
2012, Fall	An Applied Introduction to SPSS, Institute for Social Research, York University, Toronto, ON.

Publications

Friendly, M., & Sigal, M. J. (2017). Graphical methods for multivariate linear models in psychological research: An R tutorial. *The Quantitative Methods for Psychology*, *13*(1), 20–45. doi: 10.20982/tqmp.13.1.p020

Sigal, M. J., & Chalmers, R. P. (2016). Play it again: Teaching statistics with Monte Carlo simulation. *Journal of Statistics Education*, *24*(3), 136-156. doi: 10.1080/10691898.2016.1246953

Friendly, M., & Sigal, M. (2015). Recent advances in visualizing multivariate linear models. *Revista Colombiana de Estadistíca*, *38*(1), 261–283. doi: 10.15446/rce.v37n2spe.47934

Friendly, M., Sigal, M. J., & Harnanansingh, D. (2015). The Milestones Project: A database for the history of data visualization. In M. A. Kimball & C. Kostelnick (Eds.), *Visible Numbers*. Ashgate Publishing.

Sigal, M. J. (2015). Visualizing likert-type data. *Psychostatistics: Newsletter of the Quantitative Methods Section of the Canadian Psychological Association*, *1*, 3.

Friendly, M., & Sigal, M. J. (2014). Some prehistory of CARME: Visual language and visual thinking. In J. Blasius & M. Greenacre (Eds.), *Visualization and Verbalization of Data* (chap. 1). Chapman and Hall.

Sigal, M. J., & Pettit, M. (2012). Information overload, professionalization, and the origins of the *Publication Manual* of the American Psychological Association. *General Review of Psychology*, *16*(4), 357-363. doi: 10.1037/a0028531

Sigal, M. J. (2012). *An Applied Introduction to SPSS*. Toronto, ON: Institute for Social Research, York University.

Sigal, M. J., & McKelvie, S. J. (2012). Is exposure to visual media related to cognitive ability? Testing Neisser's hypothesis for the Flynn effect. *Journal of Articles in Support of the Null Hypothesis*, *9*(1), 23-50.

Sigal, M. J., & Pettit, M. (2010). [Review of J. Goodwin's *A History of Modern Psychology: Third Edition*]. *Canadian Psychology*, *51*(1). doi: 10.1037/a0018471

Presentations

Papers

Sigal, M. J. (2017, March). Table dressing: Strategies for improving tabular displays of Monte Carlo simulation results. Applied lecture given at the Quantitative Methods Forum, York University, Toronto, ON.

Friendly, M., & Sigal, M. J. (2017, January). Visualizing tests for equality of covariance matrices. Applied lecture given at the Quantitative Methods Forum, York University, Toronto, ON.

Belliveau, A., & Sigal, M. J. (2016, August). Chronological celluloid cartography: Mapping the history of psychology's films. Paper presented at the American Psychological Association conference, Colorado Convention Center, Denver, CO.

Friendly, M., & Sigal, M. J. (2016, June). Visualizing multivariate linear models in R. Paper presented at Cinquièmes Recontres R conference, Toulouse, France.

Sigal, M. J. (2016, February). Everything on the table: Demystifying the results of simulation studies and other complex tables. Applied lecture given at the Quantitative Methods Forum, York University, Toronto, ON.

Sigal, M. J. (2015, January). MSCEIT meets MIRT: Assessing the psychometric properties of emotional intelligence. Applied lecture given at the Quantitative Methods Forum, York University, Toronto, ON.

Sigal, M. J. (2013, December). Introduction to computerized adaptive testing. Applied lecture given at York University, Toronto, ON.

Sigal, M. J. (2013, November). Multiple trait, multiple method models. Applied lecture given at York University, Toronto, ON.

Sigal, M. J. (2013, October). The grammar of (interactive) graphics. Applied lecture given at the Quantitative Methods Forum, York University, Toronto, ON.

Sigal, M. J., & Friendly, M. (2013, August). Statistical historiography: Plotting the history of data visualization via the Milestones Project. Paper presented at the American Psychological Association conference, Honolulu, Hawaii.

Counsell, A., Sigal, M. J., Chalmers, R. P., & Cribbie, R. (2013, May). Extending the Robust Means Modeling Framework. Paper presented at the Modern Modeling Methods conference, Storrs, Connecticut.

Friendly, M., & Sigal, M. J. (2013, May). Visualization for multivariate linear models. Paper presented at the Statistical Society of Canada conference, Edmonton, AL.

Friendly, M., & Sigal, M. J. (2013, April). Recent Advances in Visualization for Multivariate Linear Models. Paper presented at Statistics Day at York University, Toronto, ON.

Sigal, M. J. (2012, July). From instructions to standards: The maturation of publication policies for American psychology. Paper presented at the Joint Meeting of Cheiron and the European Society for the History of Human Sciences, Dawson College, Montreal, QC.

Sigal, M. J. (2012, June). Counting the seconds: Working with reaction time data. Paper presented at the Social and Personality Psychology symposium on Recent Advances in Data Screening and Solutions to Assumption Violations at the Canadian Psychological Association conference, World Trade and Convention Centre, Halifax, NS.

Sigal, M. J. (2011, November). Make it pretty! Graphical post-processing using Adobe Illustrator. Applied lecture given at the Quantitative Methods Brownbag Series, York University, Toronto, ON.

Sigal, M. J. (2010, June). The origins of the 'Bible': The historical roots of the American Psychological Association's Publication Manual. Paper presented at Cheiron: The International Society for the History of Behavioral and Social Sciences, LeMoyne College, Syracuse, NY.

Sigal, M. J. (2009, November). APA style: The *Publication Manual* as a foundation for discursivity in 20th century American psychology. Paper presented at the 2009-2010 History and Theory of Psychology Colloquium Series, York University, Toronto, ON.

Posters

Anisef, P., Brown, R., Conley, C., Maldonado, V., Sigal, M. J., & Smith, C. E. (2012, February). The big picture: Visualizing issues of post-secondary education access. Poster presented at the Ontario Education Research Symposium, Toronto, ON.

Sigal, M. J. (2008, April). The influence of visual media on fluid intelligence. Poster presented at the 2007-2008 Research Week, Bishop's University, Lennoxville, QC.

Invited Talks

Sigal, M. J. (2015, March). Introduction to R for psychometrics. Full-day applied workship given at Multi-Health Systems, Inc., Toronto, ON.

Sigal, M. J. (2011, April). Introduction to SPSS workshop. Lecture given at the Ministry of Child and Youth Services, Toronto, ON.

Sigal, M. J. (2010, August). Statistical thinking and methodology for medical research. Lecture given at the University of Toronto, Toronto, ON.

Sigal, M. J. (2009, August). Applied statistics for graduate-level theses in dentistry. Lecture given at the University of Toronto, Toronto, ON.

Software

Chalmers, R. P., & Sigal, M. J. (2016). *SimDesign: Structure for organizing Monte Carlo simulation designs.* R package version 1.6, `http://CRAN.R-project.org/package=SimDesign`.

Friendly, M., Chalmers, R. P., & Sigal, M. J. (2016). *statquotes: Quotes on Statistics, Data Visualization and Science.* R package version 0.2, `http://CRAN.R-project.org/package=statquotes`.

Chalmers, R. P., Smith, C. E., & Sigal, M. J. (2012). *OLScurve: OLS growth curve trajectories.* R package version 0.1.2, `http://CRAN.R-project.org/package=OLScurve`.

Professional Experience

Teaching Assistantships

The following positions were held with the Department of Psychology at York University, Toronto, ON.

2015-2016	PSYC 4170 - Advanced Research in Psychology (Dr. P. Kohn)
2013, Fall	PSYC 3031 - Intermediate Statistics Laboratory (C. Smith, MA)
2011-2012	PSYC 6130 - Univariate Analysis (Dr. E. Ross)
2011-2012	PSYC 6130 - Univariate Analysis (Dr. R. Cribbie)
2010-2011	PSYC 2020 - Statistical Methods I and II (Tutorial Leader; Dr. J. Check)
2009-2010	PSYC 2020 - Statistical Methods I and II (Tutorial Leader; Dr. J. Check)
2009, Fall	PSYC 3090 - Psychological Measurement (Dr. Z. Marjanovic)

The following positions were held with the Insitute for Social Research at York University, Toronto, ON.

2016, Summer	An Introduction to NVivo 11 (Dr. S. Park)
2013, Fall	A Second Course in Structural Equation Modeling (Dr. R. Cribbie)
2013, Summer	Introduction to Regression (Dr. D. Flora)
2012, Summer	Theory and Practice of Linear and Mixed Models (Dr. J. Fox)
2012, Summer	An Introduction to R (Dr. J. Fox)
2012, Winter	A Gentle Introduction to R (C. Smith, MA)
2012, Winter	An Introduction to Structural Equation Modeling (Dr. C. Mara)
2011, Fall	Introduction to SPSS for Windows Short Course (Dr. L. Fiksenbaum)
2011, Summer	Introduction to SPSS for Windows Short Course (Dr. L. Fiksenbaum)
2010, Fall	Introduction to SPSS for Windows Short Course (Dr. S. Jones)

Research Assistantships

2010-2011	Research Assistant (Dr. Michael Friendly)
2008-2009	Research Assistant (Dr. Michael Pettit)

Teaching Development

Graduate Level Courses and Practica

2015, Summer	PSYC 6820 - Research Practicum (Dr. M. Friendly)
2013, Fall	PSYC 6820 - Research Practicum (Dr. J. Pek)
2013, Fall	PSYC 6180 - Psychometric Methods (Dr. D. Flora)
2012, Fall	PSYC 6710 - Scientific Programming and Simulation in R (Dr. R. Cribbie)
2012, Summer	MATH 6643: Applications of Mixed Models (Dr. G. Monette)
2011, Fall	PSYC 6650 - Research Methodology for Developmental Psychology (Dr. N. Cepeda)
2011, Summer	PSYC 6710 - Latent Growth Curve Modeling (Dr. D. Flora)
2010-2011	PSYC 6140 - Multivariate Analysis (Dr. M. Friendly)
2010-2011	PSYC 6820 - Research Practicum (Dr. M. Friendly)
2010, Winter	STS 6201 - Technologies of Behaviour (Dr. A. Rutherford)
2009, Winter	PSYC 6030 - Historical & Theoretical Foundations of Contemporary Psychology B (Dr. M. Pettit)
2009, Fall	PSYC 6273 - Computer Programming for Experimental Psychology (Dr. R. Murray)
2008-2009	PSYC 6130 - Univariate Analysis (Dr. J. Elder)
2008-2009	PSYC 6820 - Research Practicum (Dr. M. Pettit)
2008, Fall	PSYC 6020 - Historical & Theoretical Foundations of Contemporary Psychology A (Dr. C. Green)

Extracurricular Short Courses and Workshops

The following courses were taken at the Insitute for Social Research, York University, Toronto, ON.

2016, Winter	Advanced Structural Equation Modeling (Dr. D. Flora)
2013, Winter	An Introduction to Item Response Theory (Dr. D. Flora)
2012, Summer	Theory and Practice of Linear and Mixed Models (Dr. J. Fox, & Dr. G. Monette)
2012, Summer	Workshop on Functional Data Analysis (Dr. J. Ramsay)
2012, Winter	Longitudinal and Hierarchical Data Analysis with Mixed Models (Dr. G. Monette)
2011, Summer	Structural Equation Modeling (Dr. K. Bollen, Dr. D. Flora, & Dr. H. McCague)
2011, Summer	Methods in Survey Data Analysis (Dr. B. Greer-Wootten)
2011, Winter	Visualizing Categorical Data with SAS and R (Dr. M. Friendly)
2011, Winter	Introduction to R (Dr. R. Cribbie)
2010, Summer	Multilevel Modeling and Longitudinal Designs (Dr. G. Monette, Dr. J. Fox, & Dr. G. Stalker)
2010, Summer	Interpreting Qualitative Data (Dr. R. Garrison)
2010, Summer	Using Computers in Qualitative Analysis: An NVivo Workshop (Dr. N. Nirupama)
2010, Summer	Introduction to SAS (Dr. H. McCague)
2010, Summer	Introduction to SPSS for Windows (Dr. S. Jones)

Other workshops and short courses:

2012, Summer	Workshop on Meta-analysis and Data Integration (Dr. J. Beyene) Offered by the Statistical Society of Canada, American Statistical Association, and Applied Biostatistics Association, Dalla Lana School of Public Health, Toronto, ON
2012, Winter	Workshop on Presenting Data and Information (Dr. E. Tufte) Boston Westin Copley Place, Boston, MA
2011, Fall	Workshop on Interpreting Regression Coefficients (Dr. K. Grace-Martin) Offered online by the Analysis Factor (`www.theanalysisfactor.com`)
2011, Fall	Fitting with MATLAB: Statistics, Optimization, and Curve Fitting (Dr. R. Willey) Offered online by the Education Department of MathWorks
2011, Summer	Technical and Parallel Computing with MATLAB (Dr. B. Shoelson) Education Department of MathWorks, York University, Toronto, ON
2011, Summer	Analytic Graphics: Turning Data into Pictures (Dr. B. E. Bertelsen) Greater Toronto Area R User's Group, Ryerson University, Toronto, ON
2011, Summer	Longitudinal Data Analysis in Practice (Dr. G. Monette, & Dr. J. Amrhein) Offered by the Statistical Society of Canada, American Statistical Association, and Applied Biostatistics Association, Dalla Lana School of Public Health, Toronto, ON
2010, Fall	Preventing Plagiarism (workshop) Teaching Development in Psychology, York University, Toronto, ON
2010, Fall	How to Create Your Online Presence (workshop) Teaching Development in Psychology, York University, Toronto, ON

Professional Service

2012, April	Volunteer judge for the Psychology Honours program research week. York University, Toronto, ON
2011-2013	Coordinator for the Quantitative Methods colloquium series. York University, Toronto, ON
2011-2013	Web administrator for the Quantitative Methods department area website. York University, Toronto, ON
2011-present	Web administrator and contributor with the "Milestones in the History of Thematic Cartography, Statistical Graphics, and Data Visualization" web document project (http://www.datavis.ca/milestones/). York University, Toronto, ON
2011, April	Volunteer judge for the Psychology Honours program research week. York University, Toronto, ON
2011-2014	Volunteer mentor for undergraduate Psychology Honours students with the Guidance in Psychology for Success (GPS) mentorship program. York University, Toronto, ON

Computer Programs/Languages

- **Statistical:** R, SPSS, SAS, Mplus, AMOS, Stata, Minitab, MATLAB
- **Web Programming:** HTML, CSS, Dreamweaver, JavaScript
- **Operating Systems:** Mac OS, Microsoft Windows, Linux
- **Graphical Preparation:** ggplot2/ggvis/lattice/googleVis (R), Adobe Illustrator, D3, Processing
- **Document Preparation:** LaTeX, MS Excel, MS PowerPoint, MS Word, OpenOffice

Professional Activities

2014-2015:	Psychometrician at Multi-Health Systems. Activities: Responsible for the statistical analyses necessary in the development of psychological assessments. Data cleaning and analysis, utilizing various latent trait models and methods. Provide training and guidance on using R.
2011-2013:	Statistical consultant for the Knowledge Network for Applied Education Research (KNAER) initiative with the Ontario Ministry of Education (OME) and the Toronto District School Board (TDSB) Activities: Web-site creation and maintenance, advisor pertaining to data visualization strategies, statistical consultation.
2010-2016:	Statistical consultant with the Statistical Consulting Service at the Institute for Social Research at York University Activities: Statistical consulting with faculty and students, participation in biweekly seminar series, and attendance at biweekly staff meetings.
2009-present:	Partner and consultant at *df* Consulting (http://www.dfconsulting.org) Activities: Statistical consulting, data cleanup and analysis, report generation, and tutoring service for a variety of clients.

Professional Affiliations

2013-present:	Statistical Society of Canada (SSC)
2012-present:	Canadian Psychological Association (CPA)
2011-present:	Psychometric Society
2010-present:	American Statistical Association (ASA)
2009-2016:	Statistical Consulting Service at the Institute for Social Research
2008-present:	American Psychological Association (APA)

References

Dr. M. Friendly   Department of Psychology, York University
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Dr. R. Cribbie   Department of Psychology, York University
4700 Keele Street, Toronto, Ontario, Canada, M3J 1P3
(416) 736-2100 x88615, cribbie@yorku.ca

Dr. D. Flora   Department of Psychology, York University
4700 Keele Street, Toronto, Ontario, Canada, M3J 1P3
(416) 736-2100 x23027, dflora@yorku.ca