SONJA D. WINTER

University of Missouri
13B Hill Hall
Columbia, MO 65211

E-mail: sdwinter@missouri.edu
Website: winterstat.github.io

EXPERIENCE

Educational, School & Counseling Psychology, University of Missouri — August 2023 - current
Assistant Professor — *Columbia, Missouri*

Missouri Prevention Science Institute, University of Missouri — August 2021- July 2023
Postdoctoral Fellow — *Columbia, Missouri*

Winter Statistics — January 2014 - June 2016
Consultant — *Amsterdam, the Netherlands*

Methodology and Statistics, Utrecht University — January 2014 - June 2016
Researcher — *Utrecht, the Netherlands*

EDUCATION

University of California, Merced — *2016-2021*
Ph.D., Psychological Sciences
Area of Study: Quantitative Methods, Measurement, and Statistics
Advisor: Associate Professor Sarah Depaoli
Dissertation: *Advanced Methods for Detecting Specification Issues in Bayesian Structural Equation Modeling.*

Utrecht University, the Netherlands — *2011-2013*
M.Sc. (Cum Laude), Psychology

Utrecht University, the Netherlands — *2008-2011*
B.Sc. (with honours), Psychology

FELLOWSHIPS & AWARDS

Society of Multivariate Experimental Psychology (SMEP)
Dissertation Research Award — *2021*

University of California, Merced

Will Shadish Graduate Student Fellowship (for research and teaching excellence)	*2020*
Psychological Sciences Outstanding Graduate Student	*2020-2021*
Psychological Sciences Research Support Award	*2020*
Psychological Sciences William R. Shadish Award for Leadership and Service	*2019-2020*
Psychological Sciences Research Dissemination Award	*2018-2021*
Psychological Sciences Jennifer Mendiola Travel Award	*2018*
Psychological Sciences Summer Support Fellowship	*2017-2021*
Psychological Sciences Graduate Group Recruitment Fellowship	*2016*
Graduate Student Association Travel Award	*2018*

Journals

Article of the Year Award: Communication Methods and Measures Journal, for: 2015
Possible solution to publication bias through bayesian statistics, including proper null hypothesis testing.

PUBLICATIONS

Peer-Reviewed Articles

1. Parmenter, J. G. & **Winter, S. D.** (in press). Inequity within the LGBTQ+ Community as a Distal Stressor: An Extension of Minority Stress Theory. *Psychology of Sexual Orientation and Gender Diversity.*

2. Merkle, E., Ariyo, O., **Winter, S. D.**, & Garnier-Villarreal, M. (2023). Opaque Prior Distributions in Bayesian SEM. *Methodology, 19*(3), 228-255. doi:10.5964/meth.11167

3. **Winter, S. D.**, & Depaoli, S. (2023). Illustrating the Value of Prior Predictive Checking for Bayesian Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal.* doi:10.1080/10705511.2022.2164286

4. **Winter, S. D.**, & Depaoli, S. (2022). Detecting Prior-Data Disagreement in Bayesian Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal.* doi:10.1080/10705511.2022.2039066

5. **Winter, S. D.**, & Depaoli, S. (2022). Sensitivity of Bayesian Model Fit Indices to the Prior Specification of Latent Growth Models. *Structural Equation Modeling: A Multidisciplinary Journal 29*(5), 667-686. doi:10.1080/10705511.2022.2032078

6. **Winter, S. D.**, & Depaoli, S. (2022). Performance of Model Fit and Selection Indices for Bayesian Structural Equation Modeling with Missing Data. *Structural Equation Modeling: A Multidisciplinary Journal, 29*(4), 531-549. doi:10.1080/10705511.2021.2018656

7. van de Schoot, R., **Winter, S. D.**, Griffioen, E., Grimmelikhuijsen, S., Arts, I., Veen, D., Grandfield, E. M., & Tummers, L. G. (2021). The Use of Questionable Research Practices to Survive in Academia: Expert Elicitation, Prior-Data Conflicts, Bayes Factors for Replication Effects, and the Bayes Truth Serum. *Frontiers in Psychology: Quantitative Psychology & Measurement, 12*, 621547 doi:10.3389/fpsyg.2021.621547

8. Arroyo, A. C., **Winter, S. D.**, Depaoli, S., & Zawadzki, M. J. (2021). Illuminating Differences in The Psychological Predictors of Academic Performance for First- And Continuing-Generation Students. *Journal of Educational and Psychological Research, 3*(2), 234-246.

9. Depaoli, S., **Winter, S. D.**, & Visser, M. (2020). The Importance of Prior Sensitivity Analysis in Bayesian Statistics: Demonstrations using an Interactive Shiny App. *Frontiers in Psychology: Quantitative Psychology & Measurement, 11*, 3271. doi:10.3389/fpsyg.2020.608045

10. Smid, S. C., & **Winter, S. D.** (2020). Dangers of the Defaults: A Tutorial on the Impact of Default Priors when using Bayesian SEM with Small Samples. *Frontiers in Psychology: Quantitative Psychology & Measurement, 11*, 611963. doi:10.3389/fpsyg.2020.611963

11. **Winter, S. D.**, & Depaoli, S. (2020). An Illustration of Bayesian Approximate Measurement Invariance with Longitudinal Data and a Small Sample Size. *International Journal of Behavioral Development, 44*(4), 371-382. doi:10.1177/0165025419880610

12. Depaoli, S., **Winter, S. D.**, Lai, K., & Guerra-Peña, K. (2019). Implementing continuous non-normal skewed distributions in latent growth mixture modeling: An assessment of specification errors and class enumeration. *Multivariate Behavioral Research, 54*(6), 795-821. doi:10.1080/00273171.2019.1593813

13. Hoorn, J. F., & **Winter, S. D.** (2018). Here comes the bad news: Doctor robot taking over. *International Journal of Social Robotics, 10*, 519-535. doi:10.1007/s12369-017-0455-2

14. Tiemensma, J., Depaoli, S., **Winter, S. D.**, Felt, J. M., Rus, H., & Arroyo, A. C. (2018). The Performance of the IES-R for Latinos and non-Latinos: Assessing Measurement Invariance. *PLoS ONE, 13*(4), e0195229. doi:10.1371/journal.pone.0195229

15. van de Schoot, R., Sijbrandij, M., Depaoli, S., **Winter, S. D.**, & van Loey, N. (2018). Bayesian PTSD-Trajectory Analysis with Informed Priors Based on a Systematic Literature Search and Expert Elicitation. *Multivariate Behavioral Research, 53*(2), 267-291. doi:10.1080/00273171.2017.1412293

16. **Winter, S. D.**, Depaoli, S., & Tiemensma, J. (2018). Assessing differences in how the CushingQoL is interpreted across countries: Comparing patients from the U.S. and the Netherlands. *Frontiers in Endocrinology, 9*, 368.doi:10.3389/fendo.2018.00368

17. van de Schoot, R., Sijbrandij, M., **Winter, S. D.**, Depaoli, S., & Vermunt, J. K. (2017). The GRoLTS-Checklist: Guidelines for reporting on latent trajectory studies. *Structural Equation Modeling: A Multidisciplinary Journal, 24*(3), 451-467. doi:10.1080/10705511.2016.1247646

18. van de Schoot, R., **Winter, S. D.**, Ryan, O., Zondervan-Zwijnenburg, M. & Depaoli, S. (2017). A systematic review of Bayesian articles in psychology: The last 25 years. *Psychological Methods, 22*(2), 217-239. doi:10.1037/met0000100

19. Konijn, E. A., van der Schoot, R., **Winter, S. D.**, & Ferguson, C. J. (2015). Possible solution to publication bias through Bayesian statistics, including proper null hypothesis testing. *Communication Methods and Measures, 9*(4), 280-302. doi:10.1080/19312458.2015.1096332

Book Chapters

1. Depaoli, S., Kaplan, D., & **Winter, S. D.** (2023). Foundations and extensions in Bayesian structural equation modeling. In Hoyle, R. (2nd Ed.) *Handbook of structural equation modeling*. New York, NY: The Guilford Press.

2. van de Schoot, R., Griffioen, E., & **Winter, S. D.** (2021). Dealing with imperfect elicitation results. In Hanea, A.M., Nane, G.F., Bedford, T., French, S. (Eds.), *Expert Judgment in Risk and Decision Analysis.* Basel: Springer International Publishing.

3. van de Schoot, R., Veen, D., Smeets, L., **Winter, S. D.**, & Depaoli, S. (2020). A Tutorial on Using The Wambs Checklist to Avoid The Misuse of Bayesian Statistics. In R. van de Schoot & M. Miočević (Eds.), *Small Sample Size Solutions: A guide for applied researchers and practitioners* (pp. 30–49). London: Routledge. doi:10.4324/9780429273872-4

Software

1. Depaoli, S., **Winter, S. D.**, & Visser, M. (2020). The Importance of Prior Sensitivity Analysis in Bayesian Statistics: Demonstrations using an Interactive Shiny App. ucmquantpsych.shinyapps.io/sensitivityanalysis.

2. Smid, S.C., & **Winter, S. D.** (2020). Shiny App: The Impact of Prior Distributions in a Bayesian Latent Growth Model. utrecht-university.shinyapps.io/impact_of_prior_distributions.

3. Behrens, L., **Winter, S. D.**, & van de Schoot, R. (2018). Shiny App: FBI: First Bayesian Inference. utrecht-university.shinyapps.io/bayesian_estimation.

PAPERS UNDER REVIEW

1. Bonifay W., **Winter, S. D.**, Skoblow, H., & Watts. A. (revise & resubmit). Good fit is not a Sufficient Indicator of Replication Success. [Invited contribution to special issue of *Assessment* on "Assessment, Measurement, and Registered Replication."]

2. Depaoli, S., **Winter, S. D.**, & Liu, H. (revise & resubmit). Under-Fitting and Over-Fitting: The Performance of Bayesian Model Selection and Fit Indices in SEM. *Structural Equation Modeling: A Multidisciplinary Journal.*

PRESENTATIONS

* denotes presenter

Conference Presentations

1. **Winter, S. D.*** (2023, August). *Goodness-of-fit and Theory Corroboration Through Informative Prior Specifications.* In W. Bonifay (chair) *High Risk, High Reward: Methods for Rigorous Testing of Psychological Theories.* Talk presented at the American Psychological Association (APA) Convention, Washington, DC.

2. **Winter, S. D.*** & Bonifay, W. (2023, April). *Prior Specification in Bayesian Estimation Affects a Model's Fitting Propensity.* Talk presented at the National Council on Measurement and Education (NCME) Conference, Chicago, Il.

3. **Winter, S. D.***, Sinval, J., & Merkle, E. (2023, April). *Comparing Priors for Estimating Sparse Ordinal Indicators in Bayesian Factor Analyses.* Talk presented at the National Council on Measurement and Education (NCME) Conference, Chicago, Il.

4. Bonifay W.*, **Winter, S. D.**, & Watts, A. (2023, January). *Better than good fit: Methods for more insightful measurement model evaluations.* Talk presented at the Hawaii International Conference on Education (HICE), Honolulu, Hawaii.

5. **Winter, S. D.***, Bonifay, W., & Watts, A. (2022, July). *Bayesian prior specification and model fitting propensity.* Talk presented at the International Meeting of the Psychometric Society (IMPS), Bologna, Italy.

6. McCall, C* & **Winter, S. D.*** (2022, July). *Using intersectional research methods to examine intervention efficacy.* Roundtable Discussion presented at the Annual Conference of the International School Psychology Association (ISPA), Leuven, Belgium.

7. **Winter, S. D.*** & Depaoli, S. (2022, April). *Detecting Misspecification in Latent Growth Models with Bayesian Fit Indices.* E-board presented at the National Council on Measurement and Education (NCME) Conference, San Diego, CA.

8. **Winter, S. D.*** & Depaoli, S. (2021, July). *Detecting Misspecification in Latent Growth Models with Bayesian Fit Indices.* Talk presented at the International Meeting of the Psychometric Society (IMPS).

9. **Winter, S. D.*** & Depaoli, S. (2021, May). *Classification and Estimation Accuracy of Growth Mixture Models with Class-Predicting Covariates: Frequentist and Bayesian Approaches.* Poster presented at the APS Virtual Convention.

10. Arroyo, A. C.*, **Winter, S. D.**, Depaoli S., & Zawadski, M. (2019, May). *Psychosocial Traits and Academic Performance: First- and Continuing-generation College Students.* Poster presented at the 31th APS Annual Convention, Washington, DC.

11. Smid, S. D.* & **Winter, S. D.** (2019, May). The Impact of Default Priors in Bayesian SEM with Small Samples. In R. van de Schoot (chair) *Risks of Default Priors in Bayesian Structural Equation Models with Small Samples and Two Approaches on How to Avoid Those Risks.* Talk presented at the 31st APS Annual Convention, Washington, DC.

12. **Winter, S. D.*** & Smid, S. (2019, May). Demonstration of an Online Educational Application on Bayesian Default Priors. In R. van de Schoot (chair) *Risks of Default Priors in Bayesian Structural Equation Models with Small Samples and Two Approaches on How to Avoid Those Risks.* Talk presented at the 31st APS Annual Convention, Washington, DC.

13. **Winter, S. D.*** & Lek, K. M. (2018, July). *Bayesian Approximate Measurement Invariance: For Those Times When You Have Too Little or Too Much Data.* Talk presented at VIII European Congress of Methodology, Jena, Germany.

14. **Winter, S. D.*** & Depaoli S. (2018, May). *Measurement Invariance for Second-Order Latent Growth Models: Frequentist and Bayesian Approaches.* Poster presented at the 30th APS Annual Convention, San Francisco, CA.

15. **Winter, S. D.*** & Depaoli S. (2017, March). *Bayesian Approximate Measurement Invariance As A Viable Alternative to Frequentist Methods.* Poster presented at The University of California, Merced Psychology Symposium, Merced, CA.

Invited Presentations

1. **Winter, S. D.*** (2022, October). *Returning meaning to 'good fit': Constraining the bifactor model via Bayesian prior specification.* Invited talk presented at the Quantitative Psychology Speaker Series at the University of California, Davis.

2. **Winter, S. D.***, Bonifay, W., & Watts, A. (2022, September). *Prior Specification in Bayesian Estimation Affects a Model's Fitting Propensity.* Invited talk presented at the Quantitative Psychology seminar at the University of Missouri, Columbia, MO.

3. McCall, C* & **Winter, S. D.*** (2022, September). *Using intersectional research methods to examine intervention efficacy.* Invited roundtable Discussion presented at the Missouri Prevention Science Institute (MPSI) seminar.

4. **Winter, S. D.*** (2022, April). *Assessing prior-data disagreement in Bayesian SEM.* Invited webinar presented at Young Statisticians Europe (YSE). A recorded version of this webinar can be found here: https://www.youtube.com/watch?v=Cuwhzd-8z4k

5. **Winter, S. D.*** (2022, March). *Introduction to Bayesian Analysis.* Invited talk presented at the College of Education and Human Development Lunch Hour, University of Missouri, MO.

6. **Winter, S. D.*** (2021, November). *Basic Bayes.* Invited talk presented at the Missouri Prevention Science Institute (MPSI) seminar.

7. **Winter, S. D.*** (2021, October). *Exploring Three Methods for Detecting Prior-Data Disagreement in Bayesian SEM.* Invited talk presented at the Quantitative Psychology seminar at the University of Missouri, Columbia, MO.

8. **Winter, S. D.*** (2017, April). *Bayesian Approximate Measurement Invariance for Second-Order Latent Growth Models.* Invited talk presented at The University of California, Merced, CA.

9. Depaoli, S.* & **Winter, S. D.*** (2016, November). *A Systematic Review of Bayesian Papers in Psychology: The Last 25 Years.* Invited talk presented at The University of California, Merced Quantitative Psychology Colloquium, Merced, CA.

Invited Workshops

1. **Winter, S. D.*** (2022, March). *Creating Dynamic Reports from your Shiny App.* Invited talk presented at R-Ladies St. Louis. A recorded version of this webinar can be found here: https://www.youtube.com/watch?v=MvGAstDzLJk

2. **Winter, S. D.***, and Smid, S. C.* (2020, July). *Dangers of Default Priors.* Invited post-conference workshop presented at S4, Utrecht, the Netherlands. (Conference canceled)

3. **Winter S. D.*** & Coburn, K.* (2019, April). *Creating an Interactive Shiny App to Share Your Research Findings.* One-day workshop presented at The University of California, Merced, CA. doi:10.17605/OSF.IO/69J37.

4. **Winter S. D.*** (2015, June). *Statistics 101.* Workshop presented at DevOps Days Amsterdam, the Netherlands.

TEACHING EXPERIENCE

Instructor of Record

ESC PS 8082: Foundations of Educational & Psychological Measurement	*Fall 2023*
ESC PS 9710: Structural Equation Modeling	*Spring 2023*

Guest Lectures

ESC PS 8850: Quantitative Foundations in Educational Research - Logistic Regression	*Fall 2023*
ESC PS 8655: Item Response Theory - Estimating Person Parameters	*Spring 2022*
PSY 202B: Advanced Psychological Statistics II - Introduction to M*plus*	*Spring 2021*
PSY 202B: Advanced Psychological Statistics II - Multilevel modeling with M*plus*	*Spring 2021*
PSY 010: Analysis of Psychological Data - One-Sample *t*-test	*Spring 2019*
PSY 010: Analysis of Psychological Data - One-way ANOVA	*Spring 2019*
PSY 010: Analysis of Psychological Data - Independent Samples *z*-test	*Fall 2017*

Graduate Teaching Assistant

PSY 202B: Advanced Psychological Statistics II, graduate level Psychology course	*Spring 2021*
PSY 202A: Advanced Psychological Statistics I, graduate level Psychology course	*Fall 2019, 2020*
PSY 105: Advanced Research Methods in Psychology	*Spring 2017*
PSY 010: Analysis of Psychological Data	*Fall 2017, 2018, Spring 2019*
PSY 015: Research Methods in Psychology	*Fall 2016, Spring 2018, 2020*

Laboratory Instructor

PSY 010L: Analysis of Psychological Data	*Fall 2017, 2018, Spring 2019*

SERVICE

International & National

Organizer, Symposium: Estimating PTSD Trajectories, Utrecht, The Netherlands	*2015*

University & Department

Statistical Consultant, Missouri Prevention Science Institute	*2021-2022*
Moderator, program Twitter account: @UCM_QuantPsych (300+ followers)	*2018-2021*
Mentor, GradEXCEL Peer Mentor Program, Graduate Division	*2019-2020*

Member, Graduate Student Survey Committee for Graduate Program Review · *2018*
Student Representative, Quantitative Psychology Open-Rank Job Search Committee · *2018*

Ad Hoc Reviewer

Journals — *Psychological Methods*, *Structural Equation Modeling: A Multidisciplinary Journal*, *Behavior Research Methods*, *British Journal of Mathematical and Statistical Psychology*, *Educational and Psychological Measurement*, *European Journal of Psychological Assessment*, *Communications in Statistics - Simulation and Computation*, *AERA Open*, *The European Journal of Psychotraumatology* (special issue on Bayesian Statistics), *Journal of Media Psychology*, *Prevention Science*, *Frontiers in Psychology*.

PROFESSIONAL DEVELOPMENT

Missouri Prevention Science Institute (Dr. Chynna McCall), Equitable Endeavor for Everyone · *2021-2022*
A Meeting of Methodologies: Advancing Methods Development, Application, and Teaching in Psychology, the Behavioural, and Social Sciences · *2020*
The Center for Engaged Teaching and Learning, UC Merced, three-part seminar on remote instruction · *2020*
Professional Seminar on Teaching, UC Merced, a semester-long course on evidence-based teaching strategies, developing a syllabus, and effective communication · *2018*
The Center for Engaged Teaching and Learning, UC Merced, Fundamentals for TAs in Higher Education Certificate · *2018*
Women in Analytics Conference, Facebook HQ, one of 300 attendees out of 1500 applicants · *2018*

PROFESSIONAL AFFILIATIONS

American Psychological Association (APA)
National Council on Measurement in Education (NCME)
Psychometric Society
Society for the Improvement of Psychological Sciences (SIPS)

SKILLS

Languages	Dutch, English
Software	R, M*plus*, BUGS/JAGS, Stan, HLM, SPSS, Git, Qualtrics
Coding	R, Python, HTML, css, LaTeX, Markdown
Select Statistics	Bayesian methods, Structural Equation Modeling, Item Response Theory, Multilevel Modeling, Measurement and Measurement Invariance, Finite Mixture Modeling, Longitudinal Data Analysis