

ALFONSO J. MARTINEZ[†]

Fordham University
School of Arts & Sciences, Department of Psychology
Assistant Professor of Psychometrics and Quantitative Psychology

alfonso.martinez@fordham.edu
226 Dealy Hall
[Academic Website](#)

PROFESSIONAL APPOINTMENTS

Assistant Professor 2024 – Present
Department of Psychology
Fordham University, Bronx, NY

EDUCATION

Ph.D., Psychological & Quantitative Foundations 2024
University of Iowa
Advisor: Jonathan Templin, PhD
Dissertation: Topics in Bayesian Generalized Latent Variable Modeling

M.S., Statistics 2023
University of Iowa
Advisor: Joseph Lang, PhD
Thesis: An EM Algorithm for Beta Item Factor Analysis

M.A., Psychological & Quantitative Foundations 2022
University of Iowa
Advisor: Jonathan Templin, PhD
Thesis: Detecting Measurement Invariance in the Log-linear Cognitive Diagnostic Model in the Presence of Attribute Hierarchies

B.A., Psychology, Minor: Mathematics 2019
California State University, Fresno
Cum Laude, Departmental Honors
Advisor: Ronald Yockey, PhD

RESEARCH INTERESTS

Generalized latent variable modeling; psychometrics; Bayesian modeling & prediction; statistical algorithm development; computational statistics

RESEARCH & SCHOLARSHIP

Refereed Journal Articles:

6. Hong, H., Vispoel, W. P., & **Martinez, A. J.** (2024). Applying SEM, Exploratory SEM, and Bayesian SEM to Personality Assessments. *Psych*, 6(1), 111–134. [Link to article](#)
5. Yamaguchi, K., & **Martinez, A. J.** (2024). Variational Bayes inference for hidden Markov diagnostic classification models. *British Journal of Mathematical and Statistical Psychology*, 77, 55–79. [Link to article](#)
4. **Martinez, A. J.**, & Templin, J. (2023). Approximate invariance testing in diagnostic classification models in the presence of attribute hierarchies: A Bayesian network approach. *Psych*, 5(3), 688–714. [Link to article](#)
3. **Martinez, A. J.**, & Templin, J. T. (2022). Estimating Bayesian diagnostic models with attribute hierarchies with the Hamiltonian-Gibbs hybrid sampler. (abstract). *Multivariate Behavioral Research*, 58(1), 141-142. [Link to article](#)
2. **Martinez, A. J.**, Templin, J. T., Mintz, C., Hicks, T., & Pace, J. (2022). Enabling computer adaptive assessments for slider-bar item types with the three-part beta measurement model. (abstract). *Multivariate Behavioral Research*, 57(1), 166. [Link to article](#)

[†]Last Update: July 13, 2024

1. **Martinez, A. J.** (2021). Factor structure and measurement invariance of the academic time management and procrastination measure. *Journal of Psychoeducational Assessment*, 39(7), 891–901. [Link to article](#)

Manuscripts Under Review:

4. Yeager, R., & **Martinez, A. J.** A sow's ear purse: Developing an integrated placement test in an under-resourced English for Academic Purposes program. [Link to preprint](#)
3. **Martinez, A. J.**, & Rios, J. A. How tenable are modeling assumptions around rapid guessing behavior? Results from a large corpus of low-stakes assessments. [Link to preprint](#)
2. Yanez, G. F., **Martinez, A. J.**, Ali, S. R., & Son, Y. Sociopolitical development and healthcare interests among rural youth: Is gender a moderator?
1. **Martinez, A. J.** Beta item factor analysis for asymmetric, bounded, and continuous item response data. [Link to preprint](#)

Preprints:

2. **Martinez, A. J.**, & Rios, J. A. The impact of rapid guessing on model fit and factor-analytic reliability: An exploratory analysis. [Link to preprint](#)
1. **Martinez, A. J.** An examination of distributional characteristics & psychometric properties of rating scales under different scale label configurations. [Link to preprint](#)

Manuscripts in Preparation:

6. Hong, H., & **Martinez, A. J.** (in prep). Evaluating and comparing exploratory and Bayesian structural equation models.
5. **Martinez, A. J.***, Yu, T., De, S., & Tan. A. (in prep). Modeling rater-mediated assessments with small samples using psychometric models, mixed-effect methods, and machine learning algorithms.
4. **Martinez, A. J.**, & Mintz, C. E. (in prep). A longitudinal analysis of physician accuracy, confidence, and alignment: Disentangling within-physician and between-physician effects via latent growth curve models with structured residuals.
3. **Martinez, A. J.**, & Templin, J. (in prep). A Hamiltonian-Gibbs algorithm with monotonicity constraints for general diagnostic classification models.
2. **Martinez, A. J.**, & Yamaguchi, K. (in prep). A regularized higher-order restricted latent class model for modeling non-ignorable missing data mechanisms.
1. **Martinez, A. J.**, Templin, J. T., Mintz, C., Hicks, T., & Pace, J. (in prep). Enabling adaptive assessments for bounded, continuous, and skewed item types with the three-part beta factor model.

Conference Paper/Poster Presentations:

26. Han, K., Hong, H., & **Martinez, A. J.** (under review). evaluating the effects of different informative priors on Bayesian SEM model fit for personality measures. Paper submitted to the Annual Meeting of the National Council on Measurement in Education, Denver, CO, USA. [If accepted, a link to the paper will be added here after the conference](#)
25. Yanez, G., **Martinez, A. J.**, Dizdagic, I., & Ali, S. (2024, August). A rural adolescent healthcare career development program in the context of the COVID-19 pandemic. Poster submitted to the Annual Meeting of the American Psychological Association, Seattle, OR, USA. [Link to poster will be added after conference](#)
24. Hong, H., & **Martinez, A. J.** (2024, August). Evaluating and comparing the performance of exploratory and Bayesian structural equation models. Poster submitted to the Annual Meeting of the American Psychological Association, Seattle, OR, USA. [Link to poster will be added after conference](#)
23. Yeager, R., & **Martinez, A. J.** (2024, July). Developing an efficient EAP placement test using integrated tasks to assess receptive and productive skills. Poster presented at the Language Testing Research Colloquium, Innsbruck, Austria. [Link to poster](#)
22. Yeager, R. & **Martinez, A. J.** (2024, April). Developing an efficient EAP placement test using integrated tasks to assess receptive and productive skills. Paper presented at the Language Assessment Research Conference, Provo, UT, USA. [Link to presentation slides](#)

*The first three authors contributed equally to this work.

21. **Martinez, A. J.**, & Hong, H. (2024, April). Examining the factor structure of personality with Bayesian SEM. Paper presented at the Annual Meeting of the Midwestern Psychological Association, Chicago, IL, USA. [Link to presentation slides](#)
20. **Martinez, A. J.** (2023, July). Multidimensional beta factor analysis for bounded & asymmetric item response data. Paper presented at the International Meeting of the Psychometric Society, College Park, MD, USA. [Link to presentation slides](#)
19. **Martinez, A. J.** (2023, April). Modeling bounded and skewed item response data with the multidimensional beta factor model. Paper presented at the Annual Meeting of the Western Psychological Association, Riverside, CA, USA. [Link to presentation slides](#)
18. **Martinez, A. J.**, Niazi, F., Zhang, J., & Templin, J. (2023, April). Combining Gibbs sampling with Hamiltonian Monte Carlo for estimation of Bayesian diagnostic models. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Chicago, IL, USA. [Link to presentation slides](#)
17. **Martinez, A. J.**, & Rios, J. A. (2023, April). The impact of rapid guessing on model fit and factor-analytic reliability. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Chicago, IL, USA. [Link to presentation slides](#)
16. **Martinez, A. J.**, & Rios, J. A. (2023, April). How tenable are modeling assumptions around rapid guessing behavior? Results from a large corpus of low-stakes assessments. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Chicago, IL, USA. [Link to presentation slides](#)
15. Deng, J., Rios, J. A., & **Martinez, A. J.** (April, 2023). A comparison of rapid guessing scoring approaches: An applied analysis. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Chicago, IL, USA. [Link to presentation slides](#)
14. **Martinez, A. J.** (2022, October). Examining the performance of regularization penalties for variable selection in the beta regression model. Talk given at the University of Iowa Graduate Research Colloquium, Iowa City, IA, USA. [Link to presentation slides](#)
13. **Martinez, A. J.**, & Templin, J. (2022, October). Estimating Bayesian diagnostic models with attribute hierarchies with the Hamiltonian-Gibbs hybrid sampler. Poster presented at the Annual Meeting of the Society of Multivariate Experimental Psychology, Monterey, CA, USA. [Link to poster](#)
12. Yanez, G., **Martinez, A. J.**, Ali, S., & Son, Y. (2022, August). Effects of sociopolitical development on healthcare career interests among rural adolescents. Poster presented at the Annual Meeting of the American Psychological Association, Minneapolis, MN, USA. [Link to presentation slides](#)
11. **Martinez, A. J.** (2022, April). Psychometric analysis of the openness to the future scale with the graded item response model. Poster presented at the Annual Meeting of the Western Psychological Association, Portland, OR, USA. [Link to poster](#)
10. Yamaguchi, K., & **Martinez, A. J.** (2022, February). A variational Bayesian posterior approximation method for hidden Markov diagnosis classification models. Paper presented at the 11th Conference of The Asian Regional Section of the International Association for Statistical Computing (held virtually). [Link to presentation slides](#)
9. **Martinez, A. J.**, Templin, J., Mintz, C., Hicks, T., & Pace, J. (October, 2021). Enabling computer adaptive assessments for slider-bar item types using a three-part beta measurement model. Poster presented at the Annual Meeting of the Society of Multivariate Experimental Psychology (held virtually). [Link to poster](#)
8. Yamaguchi, K., & **Martinez, A. J.** (2021, July). A variational Bayes inference algorithm for longitudinal diagnostic classification models. Paper presented at the International Meeting of the Psychometric Society (held virtually). [Link to presentation slides](#)
7. **Martinez, A. J.** (2021, April). Investigating scale reliability of fully-labeled and partially-labeled rating scales: An application of generalizability theory. Paper presented at the Annual Meeting of the Western Psychological Association, Las Vegas, NV, USA. [Link to presentation slides](#)
6. **Martinez, A. J.**, Beckelhymer, D., Tintle, N., & Helming, L. (2020, October). Generational risk factors for suicide ideation, plans, & attempts in Ukraine. Poster presented at the Annual Meeting of the Western Psychological Association, San Francisco, CA, USA. [Link to poster](#)
5. Benesh, D., Cox, M., Ham, Y., **Martinez, A. J.**, & Oakley, A. (2019, October). Minecraft as a tool for collaborative problem solving. Poster presented at the 2019 ACTNEXT Education Technology and Computational Psychometrics Symposium, Coralville, IA, USA. [Link to poster](#)

4. **Martinez, A. J.**, & Yockey, R. (2019, May). The impact of varied Likert-type scale options on participant response characteristics. Poster presented at the Annual Meeting of the Western Psychological Association, Pasadena, CA, USA. [Link to poster](#)
3. Yockey, R. & **Martinez, A. J.** (2019, May). The impact of true/false vs. agree/disagree items and neither agree nor disagree vs. neutral midpoints on Likert scale response characteristics. Poster presented at the Annual Meeting of the Western Psychological Association, Pasadena, CA, USA. [Link to poster](#)
2. Fowler, C., Johnson, C., **Martinez, A. J.**, Tintle, N., Ulrich, R., Helming, L., Christians, M., & McCarthy, M. (2018, October). Ukraine specific risk factors for intermittent explosive disorder. Poster presented at the Council on Undergraduate Research Symposium, Alexandria, VA, USA. [Link to poster](#)
1. **Martinez, A. J.**, & Yockey, R. (2018, May). A comparison of varied Likert-type scales on student response characteristics. Poster presented at the Central California Research Symposium, Fresno, CA, USA.

GRANTS, FELLOWSHIPS, & FUNDING

ACT Scholars Graduate Research Fellowship ACT, Inc. Award amount: \$175,000.	2019 – 2024
Audrey Qualls Travel Grant University of Iowa Project title: <i>Multidimensional beta factor analysis for bounded & asymmetric item response data.</i> Award amount: \$300.00.	2023
Office of the Dean Graduate Student Travel Grant University of Iowa Project title: <i>Multidimensional beta factor analysis for bounded & asymmetric item response data.</i> Award amount: \$300.00.	2023
National Council on Measurement in Education Travel Grant National Council on Measurement in Education Project titles: (1) <i>The impact of rapid guessing on model fit and factor-analytic reliability</i> & (2) <i>Combining Gibbs sampling with Hamiltonian Monte Carlo for estimation of Bayesian diagnostic models.</i> Award amount: \$1,500.00.	2023
Graduate & Professional Student Government (GPSG) Research Grant University of Iowa Project title: <i>Combining Gibbs sampling with Hamiltonian Monte Carlo for Bayesian diagnostic model estimation in the presence of attribute hierarchies.</i> Award amount: \$600.00.	2023
Society of Multivariate Experimental Psychology Travel Grant Society of Multivariate Experimental Psychology Project title: <i>Estimating Bayesian diagnostic models with attribute hierarchies with the Hamiltonian-Gibbs hybrid sampler.</i> Award amount: \$1,500.00.	2022
Chan Zuckerberg Initiative Fellowship Chan Zuckerberg Initiative. Award amount: \$3,000.	2022

GRADUATE COURSEWORK (listed alphabetically)

Applied Bayesian statistics
Applied statistics I (linear models)
Bayesian analysis
Bayesian psychometric modeling
Causal inference
Classical test theory
Clustered multilevel modeling
Computer intensive statistics
Design and analysis of experiments
Factor analysis & structural equation models
General linear models
Generalizability theory
Generalized linear models
Item response Theory

Longitudinal multilevel modeling
Multivariate calculus
Multivariate data analysis
Proseminar in educational measurement & statistics
Probability & stochastic processes
Seminar: High-dimensional Bayesian analysis
Seminar: Multidimensional measurement models
Seminar: Research in psychometrics
Seminar: Test validation methods and models
Statistical consulting
Statistical inference I & II
Statistical machine learning
Test equating & scaling

TECHNICAL SKILLS & TRAINING

R (advanced), SAS (intermediate), STATA (intermediate), SPSS (intermediate), Python (beginner),
Mplus (intermediate), flexMIRT (intermediate), L^AT_EX (advanced), C++ (intermediate)

RESEARCH INTERNSHIPS

Measurement Science Intern 2023
American Board of Internal Medicine
Research and Innovations
Supervisor: Jerome Clauser, EdD

Psychometric Research Intern 2022
The Center for Measurement Justice
Mentor: Joseph Rios, PhD

Research Intern 2018
NSF REU Program Site: Effects of Political Upheaval and Ethnic Discord on the Mental Health on a Population
(NSF-SMI 1560078)
Department of Statistics
Dordt College (now Dordt University)
Mentors: Nathan Tintle, PhD & Luralyn Helming, PhD

TEACHING EXPERIENCE

Workshop Instructor 2024
Annual Meeting of the Western Psychological Association
An Introduction to Bayesian Statistics for Psychological Research

Graduate Teaching Assistant Fall 2023, Spring 2024
Intermediate Statistical Methods, University of Iowa
Instructor: Brandon LeBeau, PhD

Graduate Teaching Assistant Spring 2023
Causal Inference, University of Iowa
Instructor: Ariel Aloe, PhD

Undergraduate Teaching Assistant Spring 2019
College Algebra, California State University, Fresno
Instructor: Ganesh Oka, PhD

Undergraduate Teaching Assistant Fall 2018
Calculus II, California State University, Fresno
Instructor: Ganesh Oka, PhD

HONORS & AWARDS

EMS Research Award 2020; 2021; 2022; 2023
University of Iowa
Award amount: **\$220 – \$444** (amount varied by year).

ACT Professional Development and Research Award ACT, Inc. Award amount: \$1,200.00.	2023
Robert L. Brennan Graduate Student Research Award Center for Advanced Studies in Measurement and Assessment Award amount: \$2,000.	2023
Outstanding Service Award National Council on Education in Measurement	2023
University of Iowa Dare to Discover Campaign University of Iowa Office of the Vice President for Research The Dare to Discover campaign showcases researchers, scholars, and creators from across the University of Iowa. Link to web profile	2022
Faculty Sponsored Student Research Award California State University, Fresno Award amount: \$250.	2018
Lee J. Cronbach Quantitative Psychology Scholarship California State University, Fresno Award amount: \$300.	2017
Lewis and Virginia Pre-Med Scholarship California State University, Fresno Award amount: \$250.	2016

SERVICE

Service to the University of Iowa

Mentor, Graduate College GradLife Peer2Peer (P2P) Mentorship Program	2023 – Present
Mentor, Graduate College Career Ladder Program	2022 – Present
Chair, Graduate Measurement and Statistics Students	2022 – 2023
Grant Reviewer, Graduate & Professional Student Government	2021 – 2023
Digital Media Manager, Graduate Measurement and Statistics Students	2021 – 2022
Committee Member, Graduate Student Executive Committee	2019 – 2021
Panelist, ‘Beginning grad school’, Graduate Student Executive Committee	2020

Service to Professional and Learned Societies

Organizer, graduate student poster session, Society of Multivariate Experimental Psychology	2022 – Present
Reviewer, annual conference proposals, American Educational Research Association	2022 – Present
Reviewer, annual conference proposals, American Educational Research Association	2022 – Present
Reviewer, American Educational Research Association, Division D, Section 2: Quantitative Methods and Statistical Theory	2024
Reviewer, American Educational Research Association, Special Interest Group, Critical Quantitative Methods	2024
Co-chair, Training and Professional Development, National Council on Measurement in Education	2022
Reviewer, Council on Undergraduate Research	2020

Ad-hoc Journal Reviewing

Psychometrika, Journal of Educational Measurement, Behavior Research Methods, Psychological Methods, Journal of Psychoeducational Assessment

MEMBERSHIPS

American Statistical Association	2021 – Present
Psychometric Society	2021 – Present
American Educational Research Association	2021 – Present
American Psychological Association	2020 – Present
National Council on Measurement in Education	2019 – Present
Western Psychological Association	2019 – Present