

# Brooke E. Magnus, PhD

Assistant Professor of Psychology &  
Neuroscience, Boston College

McGuinn 343  
140 Commonwealth Ave  
Chestnut Hill, MA 02467

(617) 552-0139

✉ brooke.magnus@bc.edu

🌐 www.brookemagnus.com

## Professional Appointments

- 2020–present **Assistant Professor of Psychology & Neuroscience** *Boston College*, Chestnut Hill, MA
- 2016–2020 **Assistant Professor of Psychology** *Marquette University*, Milwaukee, WI
- 2016–2020 **Assistant Adjunct Professor of Clinical and Translational Science** *Medical College of Wisconsin*, Wauwatosa, WI

## Research Interests

Item Response Theory, Psychometrics, Assessment of Behavioral and Health Outcomes, Psychological and Educational Measurement

## Education

- 2010–2016 **Ph.D. in Quantitative Psychology, Minor in Biostatistics** *University of North Carolina at Chapel Hill*, Chapel Hill, NC, Dissertation: Item Response Modeling of Multivariate Count Data with Zero Inflation, Maximum Inflation, and Heaping; Advisor: David Thissen
- 2006–2009 **B.A. in Psychology, Minor in Statistics, *summa cum laude*, Highest Honors in Psychology** *Mount Holyoke College*, South Hadley, MA

## Awards and Honors

- 2019 **Way Klingler Young Scholar Award** *Marquette University*
- 2018 **Way Klingler Teaching Enhancement Award** *Marquette University*
- 2015 **John B. Carroll Award for Graduate Excellence** *University of North Carolina*
- 2009 **Phi Beta Kappa** *Theta Chapter of Massachusetts*
- 2008 **Statistics Prize** *Department of Mathematics and Statistics, Mount Holyoke College*

## Publications

\* denotes graduate student co-author, + denotes undergraduate co-author

### Peer-Reviewed Articles

Morton, H. E., Bottini, S. B., McVey, A. J., **Magnus, B. E.**, Gillis, J. M., & Romanczyk, R. G. (in press). The assessment of Bullying Experiences Questionnaire (ABE) for neurodivergent youth: Establishing scoring criteria and clinical thresholds. *International Journal of Bullying Prevention*. Advance online publication.

- Magnus, B. E.**, & +Chen, Y. (in press). Does response format matter? The psychometric effects of filter questions on self-reported symptom frequencies. *Assessment*. Advance online publication.
- \*Simons, M. U., Nelson, L. D., McCrea, M. A., Balsis, S., Hoelzle, J. B., & **Magnus, B. E.** (in press). Linking Rivermead Post Concussion Symptoms Questionnaire (RPQ) and Sport Concussion Assessment Tool (SCAT) scores with item response theory. *Journal of the International Neuropsychological Society*. Advance online publication.
- Nelson, L. D., **Magnus, B. E.**, Temkin, N. R., Dikmen, S., Manley, G. T., & Balsis, S. (2022). How do scores on the Functional Status Examination (FSE) correspond to scores on the Glasgow Outcomes Scale-Extended (GOSE)? *Neurotrauma Reports*, 3(1).
- Magnus, B. E.**, Balsis, S., Giacino, J. T., McCrea, M. A., Temkin, N. R., Whyte, J., Manley, G. T., Nelson, L. D., & the TRACK-TBI Investigators. (2022). Improving the precision of the Glasgow Outcome Scale-Extended using item response theory: A TRACK-TBI study. *Journal of Neurotrauma*, 39(11-12), 870–878.
- Magnus, B. E.**, & Liu, Y. (2022). Symptom presence and symptom severity as unique indicators of psychopathology: An application of multidimensional zero-inflated and hurdle graded response models. *Educational and Psychological Measurement*, 82(5), 938–966. <https://doi.org/https://doi.org/10.1177/00131644211061820>
- Magnus, B. E.**, & Garnier-Villarreal, M. (2022). A multidimensional zero-inflated graded response model for ordinal symptom data. *Psychological Methods*, 27(2), 261–279. <https://doi.org/https://doi.org/10.1037/met0000395>
- \*McVey, A. J., \*Schiltz, H. K., Coffman, M., Antezanna, L., & **Magnus, B. E.** (2022). A preliminary psychometric analysis of the Difficulties with Emotion Regulation Scale (DERS) among autistic adolescents and adults: Factor structure, reliability, and validity. *Journal of Autism and Developmental Disorders*, 52(3), 1169–1188. <https://doi.org/10.1007/s10803-021-05018-4>
- Weiss, E. M., Guttman, K. F., Olszewski, A. E., **Magnus, B. E.**, Li, S., Shah, A. N., Juul, S. E., Wu, Y. W., Ahmad, K. A., Bendel-Stenzel, E., Isaza, N. A., Lampland, A. L., Mathur, A. M., Rao, R., Riley, D., Russell, D. G., Salih, Z. N. I., Torr, C. B., Weitkamp, J. H., . . . Wilfond, B. S. (2021). Parental enrollment decision-making for a neonatal clinical trial. *The Journal of Pediatrics*, 239, 143–149.e3. <https://doi.org/https://doi.org/10.1016/j.jpeds.2021.08.014>
- \*Schiltz, H. K., & **Magnus, B. E.** (2021). Differential item functioning based on autism features and age on the Screen for Child Anxiety Related Disorders (SCARED) among youth on the autism spectrum. *Autism Research*, 14(6), 1220–1236. <https://doi.org/10.1002/aur.2481>
- Garnier-Villarreal, M., Merkle, E., & **Magnus, B. E.** (2021). Between-item multidimensional IRT: How far can the estimation methods go? *Psych*, 3(3), 404–421. <https://doi.org/https://doi.org/10.3390/psych3030029>
- Weiss, E. M., Olszewski, A. E., Guttman, K. F., **Magnus, B. E.**, Li, S., Shah, A. N., Juul, S. E., Wu, Y. W., Ahmad, K. A., Bendel-Stenzel, E., Isaza, N. A., Lampland, A. L., Mathur, A. M., Rao, R., Riley, D., Russell, D. G., Salih, Z. N. I., Torr, C. B., Weitkamp, J. H., . . . Shah, S. K. (2021). Parental factors associated with the decision to participate in a neonatal clinical trial. *JAMA Network Open*, 4(1). <https://doi.org/10.1001/jamanetworkopen.2020.32106>
- \*Haendel, A. D., Barrington, A., **Magnus, B. E.**, Arias, A. A., McVey, A., Pleiss, S., Carson, A., Vogt, E. M., & Van Hecke, A. V. (2021). Changes in electroencephalogram coherence in adolescents with autism spectrum disorder after a social skills intervention. *Autism Research*, 14(4), 787–803. <https://doi.org/10.1002/aur.2459>

- Torres, L., **Magnus, B. E.**, & \*Najar, N. (2021). Assessing the psychometric proprieties of the Attitudes Towards Seeking Professional Psychological Help Scale Short Form among Latino adults. *Assessment*, 28(1), 211–224. <https://doi.org/10.1177/1073191119899470>
- \*Schiltz, H. K., **Magnus, B. E.**, McVey, A. J., Haendel, A. D., Dolan, B. K., Willar, K. S., Pleiss, S., Karst, J. S., Carson, A. M., & Van Hecke, A. V. (2021). A psychometric analysis of the Social Anxiety Scale for Adolescents in youth with autism spectrum disorder: Caregiver-adolescent agreement, factor structure, and validity. *Assessment*, 28(1), 100–115. <https://doi.org/10.1177/1073191119851563>
- Wilmoth, K., **Magnus, B. E.**, McCrea, M. A., & Nelson, L. D. (2020). Preliminary validation of an Abbreviated Acute Concussion Symptom Checklist using item response theory. *American Journal of Sports Medicine*, 48(12), 3087–3093. <https://doi.org/10.1177/0363546520953440>
- \*Nitta, M. E., **Magnus, B. E.**, Marshall, P., & Hoelzle, J. (2020). Item response theory analyses of Barkley's Adult Attention-Deficit/Hyperactivity (ADHD) Rating Scales. *Archives of Clinical Neuropsychology*, 35(7), 3087–3093. <https://doi.org/https://doi.org/10.1093/arclin/aaa041>
- \*Schiltz, H. K., & **Magnus, B. E.** (2020). Gender-based differential item functioning on the Child Behavior Checklist in autism. *Research in Autism Spectrum Disorders*, 79. <https://doi.org/10.1016/j.rasd.2020.101669>
- Camerota, M., Willoughby, M. T., **Magnus, B. E.**, & Blair, B. C. (2020). Leveraging item accuracy and reaction time to improve measurement of child executive function ability. *Psychological Assessment*, 32(12), 1118–1132. <https://doi.org/10.1037/pas0000953>
- D'Souza, A., **Magnus, B. E.**, Myers, J., Dispenzieri, A., & Flynn, K. E. (2020). The use of patient-reported outcomes (PROs) to inform light chain (AL) amyloid disease severity at diagnosis. *Amyloid*, 27(2), 111–118. <https://doi.org/10.1080/13506129.2020.1713743>
- Nelson, L., Brett, B. L., **Magnus, B. E.**, Balsis, S., McCrea, M. A., Manley, G. T., Temkin, N., & Dikmen, S. (2020). Functional Status Examination (FSE) yields higher measurement precision of functional limitations after traumatic injury than the GOSE: A preliminary study. *Journal of Neurotrauma*, 37(4), 675–679. <https://doi.org/10.1089/neu.2019.6719>
- Ranson, J., **Magnus, B. E.**, Temkin, N., Dikmen, S., Giacino, J., Okonkwo, D. O., Valadka, A., Manley, G. T., Nelson, L. D., & TRACK-TBI Investigators. (2019). Diagnosing the GOSE: Structure and psychometric properties using item response theory. *Journal of Neurotrauma*, 36(17), 2493–2505. <https://doi.org/10.1089/neu.2018.5998>
- Magnus, B. E.**, Willoughby, M., Blair, C. B., & Kuhn, L. J. (2019). Integrating item accuracy and reaction time to improve the measurement of inhibitory control abilities in early childhood. *Assessment*, 26(7), 1296–1306. <https://doi.org/10.1177/1073191117740953>
- Weiss, E. M., **Magnus, B. E.**, & Coughlin, K. (2019). Factors associated with decision-making preferences among parents of infants in neonatal intensive care. *Acta Paediatrica*, 108(5), 967–968. <https://doi.org/10.1111/apa.14735>
- Tulsky, D. S., Kisala, P., Boulton, A. J., Jette, A., Thissen, D., Ni, P., DeWalt, D. A., Huang, I.-C., Liu, Y., Mulcahey, M., Slavin, M., **Magnus, B. E.**, Crump, H., Hanks, R., Charlifue, S., & Reeve, B. B. (2019). Determining a transitional scoring link between PROMIS pediatric and adult physical health measures. *Quality of Life Research*, 28(5), 1217–1229. <https://doi.org/10.1007/s11136-018-2073-3>

- Magnus, B. E.**, \*Kirkman, M., +Dutta, T., +Kaur, M., & +Mannchen, N. (2019). To bin or not to bin? A comparison of symptom frequency response formats in the assessment of health-related quality of life. *Quality of Life Research*, 28(3), 841–853. <https://doi.org/10.1007/s11136-018-2064-4>
- Magnus, B. E.**, & Liu, Y. (2018). A zero-inflated box-cox normal unipolar item response model for measuring constructs of psychopathology. *Applied Psychological Measurement*, 42(7), 571–589. <https://doi.org/10.1177/0146621618758291>
- \*Schiltz, H. K., \*McVey, A.J., **Magnus, B. E.**, \*Dolan, B. K., Willar, K. S., Pleiss, S., Karst, J., Carson, A. M., \*Caiizzo, C., \*Vogt, E., & V., V. A. (2018). Examining the links between challenging behaviors in youth with asd and parental stress, mental health, and involvement: Applying an adaptation of the Family Stress Model to families of youth with ASD. *Journal of Autism and Developmental Disorders*, 48(4), 1169–1180. <https://doi.org/10.1007/s10803-017-3446-0>
- Wohl, D. A., Panter, A. T., Kirby, C., **Magnus, B. E.**, Hudgens, M. G., Allmon, A., & Mollan, K. R. (2018). Estimating HIV medication adherence and persistence: Two instruments for clinical and research use. *AIDS and Behavior*, 22(3), 948–960. <https://doi.org/10.1007/s10461-017-1772-z>
- Willoughby, M., Blair, C. B., Kuhn, L. J., & **Magnus, B. E.** (2018). The benefits of adding a brief measure of simple reaction time to the assessment of executive function in early childhood. *Journal of Experimental Child Psychology*, 170(3), 30–44. <https://doi.org/10.1016/j.jecp.2018.01.003>
- Sexton, B. J., Adair, K. C., Leonard, M. W., Christensen, F., Proulx, J., Watson, S. R., **Magnus, B. E.**, Bogan, B., Jamal, M., Schwendimann, R., & Frankel, A. S. (2018). Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout. *BMJ Quality and Safety*, 27(4), 261–270. <https://doi.org/http://dx.doi.org/10.1136/bmjqs-2016-006399>
- Magnus, B. E.**, & Thissen, D. (2017). Item response modeling of multivariate count data with zero inflation, maximum inflation, and heaping. *Journal of Educational and Behavioral Statistics*, 42(5), 531–558. <https://doi.org/https://doi.org/10.3102/1076998617694878>
- Reeve, B. B., Thissen, D., Bann, C. M., Mack, N., Treiman, K., Sanoeff, H., Roach, N., **Magnus, B. E.**, He, J., Wagner, L. K., Moultrie, R., Jackson, K. D., Mann, C., & McCormack, L. A. (2017). Psychometric evaluation and design of patient-centered communication measures for cancer care settings. *Patient Education and Counseling*, 100(7), 1322–1328. <https://doi.org/10.1016/j.pec.2017.02.011>
- Willoughby, M. T., **Magnus, B. E.**, Vernon-Feagans, L., Blair, C. B., & The Family Life Project Investigators. (2017). Developmental delays in executive function from 3-5 years of age predict kindergarten academic readiness. *Journal of Learning Disabilities*, 50(4), 359–372. <https://doi.org/10.1177/0022219415619754>
- Gilkey, M. B., McRee, A. L., **Magnus, B. E.**, Reiter, P. L., Dempsey, A. F., & Brewer, N. T. (2016). Vaccination confidence and parental refusal/delay of early childhood vaccines. *PLoS One*, 11(7). <https://doi.org/10.1371/journal.pone.0159087>
- Magnus, B. E.**, Liu, Y., He, J., Quinn, H., Thissen, D., Gross, H. E., DeWalt, D., & Reeve, B. (2016). Mode effects between computer self-administration and telephone interviewer-administration of the PROMIS pediatric measures, self and proxy report. *Quality of Life Research*, 25(7), 1655–1665. <https://doi.org/10.1007/s11136-015-1221-2>

- Liu, Y., **Magnus, B. E.**, & Thissen, D. (2016). Modeling and testing differential item functioning in unidimensional binary item response models with a single continuous covariate: A functional data analysis approach. *Psychometrika*, *81*(12), 371–398. <https://doi.org/10.1007/s11336-015-9473-x>
- Gilkey, M. B., Reiter, P. L., **Magnus, B. E.**, McRee, A. L., Dempsey, A. F., & Brewer, N. T. (2016). Validation of the Vaccination Confidence Scale: A brief measure to identify parents at risk for refusing adolescent vaccines. *Academic Pediatrics*, *16*(1), 42–49. <https://doi.org/10.1016/j.acap.2015.06.007>
- Thissen, D., Liu, Y., **Magnus, B. E.**, Quinn, H., Gipson, D. S., Huang, I. C., Hinds, P. S., Selewski, D. T., Reeve, B. B., Gross, H. E., & DeWalt, D. A. (2016). Estimating minimally important difference (MID) in PROMIS pediatric measures using the scale-judgment method. *Quality of Life Research*, *25*(1), 13–23. <https://doi.org/10.1007/s11136-015-1058-8>
- Reeve, B. B., Thissen, D., DeWalt, D. A., Huang, I. C., Liu, Y., **Magnus, B. E.**, Quinn, H., Gross, H. E., Kisala, P. A., Ni, P., Haley, S. M., Mulcahey, M. J., Charlifue, S., Hanks, R., Slavin, M., Jette, A. M., & Tulsy, D. S. (2016). Linkage between the PROMIS pediatric and adult emotional distress measures. *Quality of Life Research*, *25*(4), 823–833. <https://doi.org/10.1007/s11136-015-1143-z>
- Varni, J. W., Thissen, D., Stucky, B. D., Liu, Y., **Magnus, B. E.**, He, J., DeWitt, E. M., Irwin, D. E., Lai, J. S., Amtmann, D., & DeWalt, D. A. (2015). Item-level informant discrepancies between children and their parents on the PROMIS pediatric scales. *Quality of Life Research*, *24*(8), 1921–1937. <https://doi.org/10.1007/s11136-014-0914-2>
- Binder, K. S., **Magnus, B. E.**, Lee, C., & Gilbert Cote, N. (2015). To tell a morphologically complex tale: Investigating the story-telling abilities of children and adults with low literacy skills. *Reading and Writing*, *28*(7), 1029–1049. <https://doi.org/10.1007/s11145-015-9560-5>
- Price, W. A., Aliaga, S., Massie, S. E., DeWalt, D. A., Laughon, M. M., Malcolm, W. F., Van Meurs, K., Klein, J. M., El-Ferzli, G., **Magnus, B. E.**, & Tolleson-Rinehart, S. (2015). Development and validation of the proxy-reported pulmonary outcomes scale for premature infants. *American Journal of Perinatology*, *32*(6), 583–590. <https://doi.org/10.1055/s-0035-1544946>
- Gilkey, M. B., **Magnus, B. E.**, Reiter, P. L., McRee, A. L., Dempsey, A. F., & Brewer, N. T. (2014). The Vaccination Confidence Scale: A brief measure of parents' vaccination beliefs. *Vaccine*, *32*(47), 6259–6265. <https://doi.org/10.1016/j.vaccine.2014.09.007>
- Quinn, H., Thissen, D., Liu, Y., **Magnus, B. E.**, Lai, J. S., Amtmann, D., Varni, J. W., Gross, H. E., & DeWalt, D. A. (2014). Using item response theory to enrich and expand the PROMIS pediatric self report banks. *Health and Quality of Life Outcomes*, *21*(1), 160–169. <https://doi.org/10.1186/s12955-014-0160-x>
- Varni, J. W., Thissen, D., Stucky, B. D., Liu, Y., **Magnus, B. E.**, Quinn, H., Irwin, D. E., Morgan DeWitt, E., Lai, J., Amtmann, D., Gross, H. E., & DeWalt, D. A. (2014). PROMIS parent proxy report scales for children ages 5–7 years: An item response theory analysis of differential item functioning across age groups. *Quality of Life Research*, *23*(1), 349–361. <https://doi.org/10.1007/s11136-013-0439-0>
- Varni, W. J., **Magnus, B. E.**, Stucky, B., Liu, Y., Quinn, H., Thissen, D., Gross, H., Huang, I., & DeWalt, D. (2014). Psychometric properties of the PROMIS pediatric scales: Precision, stability, and comparison of different scoring and administration options. *Quality of Life Research*, *23*(4), 1233–1243. <https://doi.org/10.1007/s11136-013-0544-0>

## Book Chapters

- Liu, Y., **Magnus, B. E.**, O'Connor, H., & Thissen, D. (2018). Multidimensional item response theory. In P. Irwing, T. Booth, & D. Hughes (Eds.), *The wiley-blackwell handbook of psychometric testing* (pp. 445–493). Chichester, West Sussex, John Wiley & Sons, Ltd.
- Thissen, D., Liu, Y., **Magnus, B. E.**, & Quinn, H. (2015). Extending the use of multidimensional IRT calibration as projection. In L. A. van der Ark, D. M. Bolt, S. Chow, J. A. Douglas, & W. Wang (Eds.), *New methods and applications in psychometrics: Proceedings from the 79th annual meeting of the psychometric society* (pp. 445–493). Springer Proceedings in Mathematics & Statistics.

## Other Book Contributions

- Magnus, B. E.** (2022). Patient-reported outcomes measurement (case study). In C. Aragon, S. Guha, M. Kogan, M. Muller, & G. Neff (Eds.), *Human-centered data science: An introduction* (pp. 61–62). Cambridge, MA, MIT Press.

## Book Reviews

- Magnus, B. E.** (2018). Review: *The basics of item response theory using R*, by F. B. Baker & S-H Kim. *Measurement: Interdisciplinary Research and Perspectives*, 16(3), 203–207. <https://doi.org/https://doi.org/10.1080/15366367.2018.1462078>

## Manuscripts Under Review

- Magnus, B. E.** (under review). Item response modeling of clinical instruments with filter questions: Disentangling symptom presence and severity.
- \*Simons, M. U., **Magnus, B. E.**, Nelson, L. D., \*Nitta, M. E., & Hoelzle, J. B. (under review). Psychometric properties of the Personality Assessment Inventory (PAI) Somatic Complaints (SOM) scale.

## Manuscripts In Preparation

- Magnus, B. E.**, & Garnier-Villarreal, M. (in preparation). Bayesian zero-inflated item response models: A simulation study.
- Magnus, B. E.** (in preparation). A unipolar framework for zero-inflated item response models.

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## Selected Conference Presentations and Invited Talks

\* denotes graduate student co-author, + denotes undergraduate co-author

- Magnus, B. E.** (2022, July). Measuring susceptibility with a multidimensional zero-inflated graded response model. International Meeting of the Psychometric Society. Bologna, Italy.
- Magnus, B. E.**, & +Chen, Y. (2022, May). Does response format matter? the role of filter questions in self-reported symptom frequencies. Association for Psychological Science Annual Convention. Chicago, IL.
- Magnus, B. E.** (2021a, November). Modeling symptom presence and severity with item response models for zero-inflated data. Quantitative Methods Colloquium, McGill University. Montreal, QC, Canada.
- Magnus, B. E.**, & Liu, Y. (2021, July). Symptom presence and symptom severity as unique indicators of psychopathology. International Meeting of the Psychometric Society. Held Virtually.

- Magnus, B. E.** (2021b, March). Modeling symptom presence and severity with item response models for zero-inflated data. Quantitative Methods Forum, York University. Toronto, ON, Canada.
- Magnus, B. E.**, & Garnier-Villarreal, M. (2020a, July). Measuring susceptibility with a multidimensional zero-inflated graded response model. International Meeting of the Psychometric Society (declined participation after conference moved online due to COVID-19). Held Virtually.
- Magnus, B. E.**, & Garnier-Villarreal, M. (2020b, May). Modeling zero inflation in survey data: A multidimensional item response theory approach. Association for Psychological Science Annual Convention (conference cancelled due to COVID-19). Chicago, IL, United States.
- \*Schiltz, H. K., & **Magnus, B. E.** (2020, May). Differential item functioning based on level of autism features and age on the parent-report version of the Screen for Child Anxiety Related Disorders among youth with autism. Annual Meeting of the International Society for Autism Research (conference moved online due to COVID-19). Seattle, WA, United States.
- Magnus, B. E.**, & Garnier-Villarreal, M. (2019, July). Modeling zero inflation in survey data: A multidimensional item response theory approach. International Meeting of the Psychometric Society. Santiago, Chile.
- Garnier-Villarreal, M., Merke, E., & **Magnus, B. E.** (2019, July). Bayesian multidimensional IRT: How far can it go? International Meeting of the Psychometric Society. Santiago, Chile.
- \*Schiltz, H. K., & **Magnus, B. E.** (2019, July). Gender-based differential item functioning on the Child Behavior Checklist in autism. International Meeting of the Psychometric Society. Santiago, Chile.
- Wilmoth, K., **Magnus, B. E.**, McCrea, M., & Nelson, L. D. (2019, June). Development and validation of a short form version of the Sports Concussion Assessment Tool (SCAT) symptom evaluation. American Academy of Clinical Neuropsychology Conference. Chicago, IL, United States.
- Magnus, B. E.** (2019, May). Item response modeling of PTSD symptoms: An argument for unipolar constructs? Association for Psychological Science Annual Convention. Washington, DC, United States.
- \*Nitta, M. E., **Magnus, B. E.**, Marshall, P., & Hoelzle, J. B. (2019, February). Item response theory analysis of the Current Symptoms Scale: Consideration of item functioning and task engagement. Annual Meeting of the International Neuropsychological Society. New York, NY, United States.
- Magnus, B. E.** (2018a, November). A zero-inflated Box-Cox normal unipolar item response model for measuring constructs of psychopathology. Quantitative Psychology Weekly Colloquium, Ohio State University. Columbus, OH, United States.
- Magnus, B. E.** (2018b, July). Comparing approaches to modeling zero inflation in open-ended frequency data. International Meeting of the Psychometric Society. New York, NY, United States.
- Magnus, B. E.**, \*Kirkman, M., +Dutta, T., +Kaur, M., & +Mannchen, N. (2018, May). A comparison of symptom frequency response formats in clinical assessment: Does response format influence self-reported symptom frequencies? Association for Psychological Science Annual Convention. San Francisco, CA, United States.

- \*Yadlosky, L., de St. Aubin, E., E., K., & **Magnus, B. E.** (2018, April). Measuring intersectionality identity: Scales of contextualized identity and perceived marginalization. Midwest Psychological Association. Chicago, IL, United States.
- \*Timmer-Murillo, S., **Magnus, B. E.**, \*Chesney, M. S., & Gordon, N. S. (2018, March). Gender-based differential item functioning on ERQ subscale items. Convention of the Society for Personality and Social Psychology. Atlanta, GA, United States.
- Magnus, B. E.** (2017a, November). Modeling questionnaire data when the responses are counts. Department of Mathematics, Statistics, and Computer Science Weekly Colloquium, Marquette University. Milwaukee, WI, United States.
- Magnus, B. E.** (2017b, July). The contribution of count items to health-related symptom assessment. International Meeting of the Psychometric Society. Zurich, Switzerland.
- Magnus, B. E.** (2017c, July). Applications of unipolar item response theory models to the PTSD Checklist – Civilian Version. Association for Psychological Science Annual Convention. Boston, MA, United States.
- \*Timmer-Murillo, S., **Magnus, B. E.**, \*Chesney, S. A., & Gordon, N. S. (2017, April). The influence of psychopathology on ERQ subscales item endorsement. Society for Affective Science Annual Conference. Boston, MA, United States.
- Magnus, B. E.**, & Thissen, D. (2016, July). Item response modeling of multivariate count data with zero-inflation, maximum inflation, and heaping. International Meeting of the Psychometric Society. Asheville, NC, United States.
- Magnus, B. E.**, Willoughby, M. T., & Liu, Y. (2016, April). Using response times to enhance scores on measures of executive functioning. National Council on Measurement in Education. Washington, DC, United States.
- Liu, Y., **Magnus, B. E.**, & Thissen, D. (2015, April). Semiparametric testing of differential item functioning. National Council on Measurement in Education. Washington, DC, United States.
- Liu, Y., **Magnus, B. E.**, & Thissen, D. (2014, July). Modeling and testing differential item functioning in unidimensional binary item response models with a single continuous covariate: A functional data analysis approach. International Meeting of the Psychometric Society. Madison, WI, United States.
- Magnus, B. E.**, & Liu, Y. (2013, May). The influence of parceling on the implied factor structure of multidimensional item response data. Modern Modeling Methods, University of Connecticut. Storrs, CT, United States.

## Grants

### Funded

- 2019-2024 **Co-Investigator** *National Institutes of Health*, National Institute of Neurological Disorders and Stroke, R01
- Title: Improving Patient Classification and Outcome Measurement in Traumatic Brain Injury (TBI)
  - Amount: \$3,736,273
  - PI: Lindsay Nelson, PhD (Medical College of Wisconsin)



- 2018-2019 **Co-Investigator** *CTSI of Southeastern Wisconsin, Pilot Start-Up Award*
- Title: Psychometric Analysis of PROMIS-29 in Light Chain Amyloidosis
  - Amount: \$12,500
  - PI: Anita D'Souza, MD (Medical College of Wisconsin, Center for Patient Care and Outcomes Research)
- 2018-2019 **Co-Principal Investigator** *Way Klingler Teaching Enhancement Award, Marquette University*
- Title: Development of an Interdisciplinary Curriculum to Promote Advanced Research Training
  - Amount: \$20,000
  - Co-PIs: Lynne Knobloch-Fedders, PhD (Marquette University), Mauricio Garnier-Villarreal (Marquette University)
- 2017 **Principal Investigator** *Regular Research Grant, Marquette University*
- Title: The Influence of Response Format on Self-Reported Symptom Frequencies on a Health-Related Quality of Life Measure
  - Amount: \$360
- 2017 **Principal Investigator** *Summer Faculty Fellowship, Marquette University*
- Title: The Influence of Response Format on Self-Reported Symptom Frequencies on a Health-Related Quality of Life Measure
  - Amount: \$5,500
- Not Funded**
- 2018 **Co-Investigator** *National Institutes of Health, R03*
- Title: Changes in EEG Coherence in Adolescents with Autism Spectrum Disorder after PEERS
  - PI: Amy Van Hecke, PhD (Marquette University)
- 2018 **Co-Principal Investigator** *Russell Sage Foundation, Computational Social Science Small Grants Award*
- Title: Using Psychometric Approaches to Reduce Biases in Algorithmic Gold Standards Datasets
  - Amount: \$150,000
  - Co-PI: Shion Guha, PhD (Marquette University)

## Teaching Experience

- 2020–present **Course Instructor** *Department of Psychology & Neuroscience, Boston College*
- PSYC1120: Introduction to Behavioral Statistics and Research I
  - PSYC5501: Statistics & Experimental Design
- 2016–2020 **Course Instructor** *Department of Psychology, Marquette University*
- MATH1700H/PSYC2001H/SOCI2060H: Honors Statistics
  - PSYC2001: Psychological Measurements & Statistics
  - PSYC3701: Principles of Psychological Testing
  - PSYC8101: Advanced Statistics & Design I
  - PSYC8102: Advanced Statistics & Design II

- 2012-2014 **Teaching Assistant** *Inter-university Consortium for Political and Social Research (ICPSR)*, University of Michigan, Ann Arbor
  - Structural Equation Modeling
  - Advanced Multivariate Statistics
- 2010-2016 **Teaching Assistant** *University of North Carolina at Chapel Hill*, Department of Psychology & Neuroscience
  - PSYC210: Statistical Principles of Psychological Research

## Research Mentoring Experience

- 2021–present **Undergraduate Research Assistants** *Department of Psychology & Neuroscience*, Boston College
  - Yitan Chen (2021-2022)
  - Jingzhuo Hu (2021-2022)
- 2021–present **Second Year Project Committee Member** *Department of Psychology & Neuroscience*, Boston College
  - Zonggui Li: Effect Size for Longitudinal Growth Models
- 2016-2020 **Undergraduate Research Assistants** *Department of Psychology*, Marquette University
  - Manpreet Kau, Xiuqi Qi, Twinkle Dutta, Nichole Mannchen, Vaibhavi Talati
- 2016-2020 **Graduate Research Assistants** *Department of Psychology*, Marquette University
  - Hillary Schiltz, Zane Ballard, Sydney Timmer-Murillo, Mackenzie Kirkman
- 2016-2020 **Dissertation Committee Member** *Department of Psychology*, Marquette University
  - Lauren Yadlosky, David Marra, Kathryn Ritchie, Natalie Benjamin, Lucas Mirabito
- 2016-2020 **Doctoral Qualifying Exam Committee Member** *Department of Psychology*, Marquette University
  - Morgan Nitta, Kathryn Ritchie, Natalie Benjamin, Lucas Mirabito, David Marra
- 2016-2020 **Master's Thesis Committee Member** *Department of Psychology*, Marquette University
  - Morgan Nitta, Alexandria Thompson

## Consulting Experience

- 2011-2016 **Statistical Consultant** *The Odum Institute*, University of North Carolina at Chapel Hill
  - Consulted with members of the UNC community requiring assistance with statistical analyses and computing
- 2014 **Statistical Consultant** *Vedanta Research*, Durham, NC
  - Worked with patient-reported data relating to experiences with chronic and episodic migraines
- 2014 **Psychometric Consultant** *UNC Office of Institutional Research and Assessment*, Chapel Hill, NC
  - Analyzed data from institutional diversity survey administered to UNC faculty, staff, and students

- 2013-2015 **Psychometric Consultant** *Gillings School of Global Public Health, University of North Carolina, Chapel Hill, NC, P.I.s: Melissa Gilkey & Noel Brewer*
- Consulted on multiple projects involving the development of scale measuring attitudes toward vaccinations
  - Collaborated with the Centers for Disease Control in analyzing data from the National Immunization Survey
- 2013-2014 **Statistical Consultant** *Cognitive Psychiatry of Chapel Hill, Chapel Hill, NC*
- Consulted on analyses for a drug intervention treatment for ADHD
- 2013 **Statistical Consultant** *World Bank, Washington, DC*
- Wrote SAS and Stata programs for the analysis of the Index of Disadvantage

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## Service

### Service to the Discipline

- 2019–present **Editorial Board Member** *Journal of Educational Measurement*
- 2014–present **Ad Hoc Reviewer** *Applied Psychological Measurement, Assessment, BMJ Open, Behavior Research Methods, British Journal of Mathematical and Statistical Psychology, Computational Statistics and Data Analysis, Educational Psychology, Frontiers in Psychology: Quantitative Psychology and Measurement, Journal of Educational and Behavioral Statistics, Journal of Educational Measurement, Multivariate Behavioral Research, PLoS One, Psychological Assessment, Psychological Methods, Quality of Life Research, Structural Equation Modeling, Vaccine*
- Dates Withheld **Panel Reviewer** *National Science Foundation, Social, Behavioral, & Economic Sciences, Panel Withheld*

### University and Departmental Service

- 2020–present **Quantitative Concentration Committee Member** *Department of Psychology & Neuroscience, Boston College*
- 2020–present **Statistical Consulting Committee Member** *Department of Psychology & Neuroscience, Boston College*
- 2020–present **Graduate Admissions & Recruitment Committee Member** *Department of Psychology & Neuroscience, Boston College*
- 2020–present **Undergraduate Mentoring Committee Member** *Department of Psychology & Neuroscience, Boston College*
- 2020–present **Technology Consultant** *Department of Psychology & Neuroscience, Boston College*
- 2018 **University Online Survey Review Committee**, Marquette University
- 2017–2020 **Undergraduate Committee** *Department of Psychology, Marquette University*

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## Professional Society Memberships

Psychometric Society, Association for Psychological Science, National Council on Measurement in Education

## Statistical Software, Computing, and Technical Skills

R, SAS, SPSS, Stata, IRTPRO, FlexMIRT, *Mplus*, LISREL, Mathematica,  $\LaTeX$