Maria L. Weese

Contact Information	800 E. High Street Farmer School of Business (Office: 2012) Oxford, OH 45056

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Website: https://weeseml.github.io/

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Research Interests

Analysis based Design, Data Stream Monitoring, Screening Design, Optimal Supersaturated Design

Education

University of Tennessee, Knoxville, TN

> Ph.D., Statistics, May 2010

> M.S., Statistics, May 2006

Virginia Tech, Blacksburg, VA

> B.S., Chemical Engineering, Minor: Chemistry, May, 2001

Academic Experience

Miami University, Department of Information Systems & Analytics

Associate Professor	**Aug. 2020 - present**
Richard T. Farmer Assistant Professor	**Aug. 2018 - July 2020**
Assistant Professor	**Aug. 2014 - July 2018**
Lecturer/Clinical Faculty	**Aug. 2012 - July 2014**
Visiting Assistant Professor	**Aug. 2010 - July 2012**

Miami University, Department of Statistics

Affiliate Faculty Member	**May 2019 - present**

University of Tennessee, Department of Statistics, Operations and Management Science

Graduate Teaching Associate	**Aug. 2006 - May 2010**

University of Tennessee, Statistical Consulting Center

Statistical Consultant	**May 2004 - July 2006**

Professional Experience

Celanese Acetate, Celco Plant, Narrows, VA

Process Improvement Engineer II *Six Sigma Green Belt Certified*	**July. 2001 - May 2004**

Publications

Young. H.K.[1], Weese, M.L., Stallrich, J.W., Smucker, B.J., Edwards, D.J.. (2024) A Graphical Comparison of Screening Designs using Support Recovery Probabilities. *Accepted: Journal of Quality Technology*

Cheng, Z, Aitha, M., Thomas, C.[1], Sturgill, A.[2], Fairweather, M.[2], Hu, A.[2], Bethel, C. Rivera, D., Dranchak, P., Thomas, P., Li, H., Feng, Q., Tao, K., Song, M., Sun, N.[2], Wang, S., Silwal, S.B., Page, R., Fast, W., Bonomo, R., Weese, M.L., Martinez, Waldyn G., Inglese, J., Crowder, M. (2024)

Machine Learning Models Identify Inhibitors of New Delhi Metallo--lactamase (NDM) *Accepted: Journal of Chemical Information and Modeling*

Lee, L.[1], L., Weese, M. L., Martinez, W. G., JonesFarmer, L. A. (2022). Robustness of the oneclass Peeling method to the Gaussian Kernel Bandwidth. *Quality and Reliability Engineering International*, 38(3), 1289-1301.

Lemkus, T.[1], Gotwalt, C., Ramsey, P.R., Weese, M.L., (2021). Self-Validated Ensemble Models for Design of Experiments. *Chemometrics and Intelligent Laboratory Systems*, 219, 104439

Weese, M. L., Stallrich, J. W., Smucker, B. J., Edwards, D. J. (2021). Strategies for supersaturated screening: Group orthogonal and constrained var (s) designs. *Technometrics*, 63(4), 443-455.

Smucker, B.J., Edwards, D.J., Weese, M.L., (2021) Response Surface Models: To Reduce or Not to Reduce?. *Journal of Quality Technology*. 53(2), 197-216. *This paper received the 2022 Llyod S. Nelson Award*

Martinez, M.G., Weese, M.L., Jones-Farmer, L.A., (2020) A One Class Peeling method for multivariate outlier detection with application to Phase I Monitoring. *Quality and Reliability Engineering International*. 36(4):1272-1295.

Weese, M.L., Montgomery, D.J., Ramsey,P.J., (2018) Analyzing Definitive Screening Designs: Screening vs. Prediction. *Applied Stochastic Models in Business and Industry*. 34(2):244-255.

Ockuly, R. [1], A., Weese, M.L., Smucker, B.J., Edwards, D.J., Chang, L. [2], (2017) Response Surface Experiments: A Meta-Analysis. *Chemometrics and Intelligent Laboratory Systems*. 164:64-75.

Weese, M.L., Edwards, D.J., Smucker, B.J., (2017) A Criteria for Constructing Powerful Supersaturated Designs when Effect Directions are Known. *Journal of Quality Technology*. 49(3):265-277.

Campbell, J.T., Weese, M.L., (2017). Compositional Models and Organizational Research: Application of a Mixture Model to Nonexperimental Data in the Context of CEO Pay. *Organizational Research Methods*. 20(1):95-120.

Weese, M.L., Martinez, W.G., and Jones-Farmer, L.A., (2017) On the Selection of the Bandwidth Parameter for the k-Chart. *Quality and Reliability Engineering International*. 33(7):1527-1547.

Weese, M.L., Martinez, W.J., Megahed, F.M., Jones-Farmer, L.A., (2016) Statistical Learning Methods Applied to Process Monitoring: An Overview and Perspective. *Journal of Quality Technology*. 48(1):4-27.

Weese, M. L., Smucker, B. J., Edwards, D. J., (2015) Searching for Powerful Supersaturated Designs. *Journal of Quality Technology*. 47(1):66-84.

Edwards, D. J., Weese, M. L., Palmer, G. M.[1], (2014) Comparing Methods for Design Follow-Up: Revisiting a Metal Cutting Case Study. *Journal of Applied Stochastic Models in Business and Industry*. 30(4):464-478.

Weese, M. L., Leitnaker, M. G., (2012) Sequential Experimentation for Mixtures. *International Journal of Design of Experiments and Process Optimisation*, 3(1):33-42.

PREPRINTS

Arafat, S.[1], Sun,N.[1], Weese, M.L., Martinez, W.G. (2023) One Class Boundary Peeling: An outlier Detection Method. *Submitted.* arXiv:2309.05630

Stallrich, J. W., Young, K.[1], Weese, M. L., Smucker, B. J., Edwards, D. J. (2023) Optimal Super-

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[1] Graduate Student
[2] Undergraduate Student

saturated Designs for Lasso Sign Recovery. *Submitted.* arXiv:2303.16843

OTHER
PUBLICATIONS

Weese, M.L. (2020) "Screening with Supersaturated Designs". Statistics Digest, ASQ Statistics Division Newsletter, (39)3:32-34

INVITED
PRESENTATIONS

Weese, M.L. (2023) "Comparing Supersaturated Designs with Exact Screening Probabilities", ASA/IMS Spring Research Conference, May, Banff.

Weese, M.L. (2022) "Response Surface Experiments: To Reduce or Not to Reduce?", Design of Experiments Session, 15th International Conference of the ERCIM WG on Computational and Methodological Statistics, December, London, *Hybrid*

Weese, M.L. (2022) Invited Attendee, Stu Hunter Research Conference, March 5-8, Roanoke, VA

Weese, M.L. (2021) Supersaturated Designs: Research Based Best Practices and the Future, Coursera DOE Fireside Chat, October, *Virtual*.

Weese, M.L., Edwards, D.J., Stallrich, J.W., Smucker, B.J. (2021) "Strategies for Supersaturated Screening: Group Orthogonal and $Var(s+)$ Designs". Technometrics, JQT, and QE Invited Session, European Network for Business and Industrial Statistics, *Virtual*

Weese, M.L., Smucker, B.J., Edwards, D.J., (2020) "Response Surface Experiments: To Reduce or Not to Reduce?". JQT Invited Session, INFORMS 2020, *Virtual*.

Weese, M.L., Smucker, B.J., Edwards, D.J., Stallrich, J.W., Ansong, E. [1], (2019) "Supersaturated Designs: Research-Based Best Practices and the Future". European Network for Business and Industrial Statistics, Budapest, Hungary.

Weese, M.L., Smucker, B.J., Edwards, D.J., Stallrich, J.W., Ansong, E. [1], (2019) "Supersaturated Designs: Research-Based Best Practices and the Future". Spring Research Conference, Blacksburg, VA.

Weese, M.L. (2018) Invited Attendee, Stu Hunter Research Conference, March 5-8, Roanoke, VA

Weese, M.L., Smucker, B.J., Edwards, D.J., (2017) "Analyzing Supersaturated Designs", Section on Physical and Engineering Sciences, Fall Technical Conference, October, Philadelphia, PA.

Weese, M.L., Smucker, B.J., Edwards, D.J., (2017) "Analyzing Supersaturated Designs", Invited Talk Section on Physical and Engineering Sciences, Joint Statistical Meetings, August, Baltimore, MD.

Weese, M.L., Martinez, W.G., Megahed, F.M., Jones-Farmer, L.A., (2017) "Statistical Learning methods and Process Monitoring", JQT Invited Session, Fall Technical Conference, October, Philadelphia, PA. *Presenter: Allison Jones-Farmer*

Weese, M.L. (2016) Invited Attendee, Stu Hunter Research Conference, March 6-9, Waterloo, CA

Weese, M.L., Smucker, B.J., Edwards, D.J. Ockuly, R.[1], Chang, L. [2], (2016) "A Meta-analysis quantifying effect sparsity, heredity and hierarchy in second-order designs", Spring Research Conference, May, Chicago, IL.

Weese, M.L., Martinez, W.G., Megahed, F.M., Jones-Farmer, L.A., (2015), "Statistical Learning Methods Applied to Process Monitoring: An Overview and Perspective", 32nd Annual Quality & Productivity Research Conference, June, Raleigh, NC.

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[1] Graduate Student
[2] Undergraduate Student

Weese, M.L., (2015), "Together We can Do So Much: Fostering Successful Collaboration among Academia, Government and Industry", Panel Discussant, Spring Research Conference May, Cincinnati, OH.

Weese, M.L., Smucker, B.J., Edwards, D.J., (2015), "Supersaturated Designs, Definitive Screening Designs and the Dantzig Selector", March, Colloquia, Department of Statistics and Operations Management, Virginia Commonwealth University, Richmond, Virginia.

CONTRIBUTED PRESENTATIONS	Weese, M.L., Sturgill, A.[2] Hu, A.[2], Fairweather, M.[2], Martinez, W.G., Crowder, M. (2023) "Machine Learning Models Identify Inhibitors of New Delhi Metallo-β-lactamase" Joint Statistical Meetings, August, Toronto, Canada.

Weese, M.L., Stallrich, J.W., Edwards, D.J., Smucker, B.J., (2020) "Stop Treating Supersaturated Designs like Other Screening Designs", Joint Statistical Meetings, August, Virtual.

Weese, M.L., Martinez, W.G., Jones-Farmer, L.A., (2018) "One Class Peeling for Outlier Detection in High Dimensions", Joint Research Conference, June, Santa Fe, NM.

Weese, M.L., Martinez, W.G., Jones-Farmer, L.A., (2016), "Recommendations on the Application of the k-chart", Fall Technical Conference, October, Minneapolis, MN.

Weese, M.L., Ramsey, P.J., Montgomery, D.J., (2015), "Analysis Strategies for Definitive Screening Design", Fall Technical Conference, October, Houston TX.

Weese, M.L., (2014), "Customer Behavior Outside 4 Walls: A Business Analytics Practicum Project using JMP", 2014, Poster Presentation, JMP Discovery Conference, September, Cary, NC.

Weese, M.L., Smucker, B.J., Edwards, D.J., (2014), "Searching for Powerful Supersaturated Designs", Fall Technical Conference, October, Richmond, VA.

FUNDING

EY Cybersecruity Initiative Summer Research Grant 2023, $5,000

National Institute of Health, "Machine learning approach for finding novel metallo-β-lactamase inhibitors", Co-PI (w/ Michael Crowder, Waldyn Martinez), $433,500, 2022-2025

Farmer School of Business Summer Research Grant 2020-2021, $10,000.

HONORS AND AWARDS

2022 Lloyd S. Nelson Award which recognizes the paper appearing in the *Journal of Quality Technology*'s 2021 volume with the greatest immediate impact to practitioners.

Outstanding Professor Award Nominee for the Miami University Associated Student Government, 2017 and 2014 (this is a campus-wide nomination for a faculty member who made significant difference in students' lives and careers).

Smucker Teaching Award Nominee for Farmer School of Business, 2015-2018.

Best Presentation Honorable Mention from the Section for Physical and Engineering Sciences of the American Statistical Association, Joint Statistical Meetings, Boston, MA 2014

Outstanding Poster Presentation Award from the Section for Physical and Engineering Sciences of the American Statistical Association, Joint Statistical Meetings, Washington DC, 2009

TEACHING

Miami University
ISA 650 Business Analytics Practicum
ISA 633 Prescriptive Analytics in Business
ISA 491/591 Introduction to Data Mining in Business
ISA 496 Business Analytics Practicum

ISA/STA 365 Design of Experiments and Process Monitoring
ISA 291 Regression Analysis in Business
ISA 225 Introduction to Business Analytics
ISA 205 Introduction to Business Statistics
Online ISA 205 Introduction to Business Statistics
ISA 203 Supplementary Business Statistics
Online ISA 203 Supplementary Business Statistics

University of Tennessee
STAT 201 Introduction to Business Statistics
STAT 365 Statistical Process Control

ADVISING

Sheikh Arafat (advisor w/ Waldyn Martinez) (August 2023) Topic: Boundary Peeling for One Class Support Vector Machines. *Masters Project*

Na Sun (advisor), (2022) Topic: The One-Class Peeling Method for multi-modal data *Masters Project*

Jie Yin (advisor), (2021) Topic: Investigating extensions of the One-Class Peeling method. *Masters Project*

Lina Li (advisor), (2020) Title: Optimizing s for OCP outlier detection. *Masters Project*

Eric Ansong (committee member) (2019) Title: SIC optimal supersaturated design. *Masters Project*

Mengdi Fu (co-advised with Byran Smucker) (2017) Title Using the Dantzig selector to analyze supersaturated experiments. *Masters Project*

Becky Ockuly (co-advised with Byran Smucker) (2016). Title: Response Surface Experiments: A Meta-Analysis. *Master's Project*

SERVICE

To the Profession:

2022-2025 Associate Editor, *Technometrics*

Editorial Review Board Member, *Quality Engineering*

Editorial Review Board Member, *Quality and Reliability Engineering International*

Journal Reviewer: *Applied Stochastic Models in Business and Industry, Chemometrics and Intelligent Laboratory Systems, Computational Statistics and Data Analysis, Informs Transactions on Education, International Journal of Production Research, Laboratory Animals, Journal of Statistical Planning and Inference, Journal of Statistical Theory and Practice, Journal of Quality Technology, Journal of the Royal Society for Statistics-C, Technometrics, Quality Engineering*

2024 Chair, Quality & Productivity Section, American Statistical Association, *Elected*
2024 Stu Hunter Conference Organizing Committee Member
2024 Joint Research Conference Program Committee Member
Invited Session Organizer, JSM 2024
2023 Chair-Elect, Quality & Productivity Section, American Statistical Association, *Elected*
Invited Session Organizer, JSM 2020
Invited Session Organizer, ICODOE 2019
Chair and member, Youden and Wilcoxn *Technometrics* Award Committee, (2018-2021)
Sponsorship Chair, Joint Research Conference (2018)
Fall Technical Conference Publicity Chair, Quality & Progress, American Statistical Association

(2016-2019)
FTC Short Course Rep, Chemical Industries & Process Division, American Society for Quality (2014-2017)
Secretary, Chemical Industries & Process Division, American Society for Quality (2012-2014)
Fall Technical Conference Assistant Program Chair, Chemical Industries and Process Division, American Society for Quality (2012)
Membership Chair, Section on Physical & Engineering Sciences, American Statistical Association (2011-2013)
Quality & Progress Research Conference Session Chair (2015, 2017)
Fall Technical Conference Session Chair (2015, 2016, 2017)
Session Chair, Joint Statistical Meetings (2011, 2014, 2017, 2022)

To Miami University:

Committees:
 Farmer School of Business Research Committee Member (2023-2024)
 University Graduate Council, Farmer School of Business Representative, *Elected* (2021-2024)
 Search Committee *Chair*, Information Systems & Analytics (2021-2022)
 Farmer School of Business Faculty Composition Task Force member (2020-2021)
 Search Committee, Information Systems & Analytics (2018, 2019, 2020. 2021, 2203)
 DataFest Judging committee (2016-2019)
 ISA Technology service committee (2016-2017)
 Farmer School of Business Commencement and Anderson Speaker Series committee (2017-2019)
 Search Committee, Farmer School of Business, Associate Dean Position (Summer 2015)
 Farmer School of Business e-Learning committee (2013-2014, 2014-2015, 2015-2016)
 ISA STAR Seminar Series committee chair (2013-2014, 2014-2015)

Center for Analytics and Data Science:
 Faculty Project Lead *Using Machine Learning in the search for antibiotic inhibitors: Miami University Chemistry Department* (Spring 2020-ongoing)
 Faculty Project Lead *Subscription payment modeling: Local Payment Processing Corporation* (Fall 2020)
 Faculty Project Lead *Data Exploration: Large Local Grocery Chain* (Spring 2019)
 Faculty Project Lead *Market Segmentation: Large Local Bank* (Fall 2018)
 Faculty Project Lead *Modeling: Butler County Landbank Round 2* (Spring 2016)

Other:
 Careers in Quantitative Skills Day (2015-2020, 2022, 2023): Prepared and lead analytics session for under served high school girls
 Proctored SAS Professional Predictive Analytics Certification Exam for ISA 491 students (86% pass rate) (2016-2018)
 Lean-In Group (2014-2016): Informal group for graduating female analytic students

PROFESSIONAL Member American Statistical Association
ACTIVITIES Member American Society for Quality