

Curriculum Vitae

David J. Edwards

Department of Statistical Sciences and Operations Research

Virginia Commonwealth University

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Research Interests

Experimental design and analysis for quality improvement, sequential experimentation, response surface methods, unreplicated designs, reliability data analysis

EDUCATION

Ph.D., Statistics

The University of Tennessee, Knoxville, TN

August 2008

Dissertation: *Design and Analysis of Screening Experiments Assuming Effect Sparsity*

Advisor: Dr. Robert W. Mee

Cognate: Operations and Management Science

GPA: 4.0

M.S., Statistics

The University of Tennessee, Knoxville, TN

May 2004

Thesis: *An Applied Statistical Reliability Analysis of the Internal Bond of Medium Density Fiberboard*

GPA: 4.0

B.S., Mathematics

Virginia Polytechnic Institute and State University, Blacksburg, VA

May 2002

Minor: Statistics

GPA: 3.97

PROFESSIONAL EXPERIENCE

Associate Professor (with tenure)

Fall 2014 – present

Virginia Commonwealth University

Department of Statistical Sciences & Operations Research

Assistant Professor

Fall 2008 – Spring 2014

Virginia Commonwealth University

Department of Statistical Sciences & Operations Research

Graduate Teaching Associate
The University of Tennessee
Department of Statistics, Operations, & Management Science

Fall 2005 – Spring 2008

Research Associate
Oak Ridge National Laboratory
National Transportation Research Center

Summer 2006

Teaching Fellow
The University of Tennessee
Ronald McNair Post-Baccalaureate Achievement Program

Summers 2003–2005

Graduate Research Assistant
The University of Tennessee, Center for Renewable Carbon

Spring 2003 – Summer 2004

Graduate Teaching Assistant
The University of Tennessee
Department of Statistics, Operations, & Management Science

Fall 2002 – Spring 2003

PUBLICATIONS AND MANUSCRIPTS

1. Guess, F.M., **Edwards, D.J.**, Pickrell, T. and Young, T.M. (2003). “Exploring Graphically and Statistically the Reliability of Medium Density Fiberboard”. *International Journal of Reliability and Applications*, 4(4), 97-110.
2. **Edwards, D.J.**, Guess, F.M. and Young, T.M. (2003). “Improving and Managing Information Quality in Forest Products”. *Proceedings of the 8th International Conference on Information Quality*, Cambridge, MA.
3. **Edwards, D.J.** and Mee, R.W. (2008). “Empirically Determined p-values for Lenth t-statistics”. *Journal of Quality Technology*, 40(4), 368-380.
4. Steele, J.C., Guess, F.M, Young, T.M. and **Edwards, D.J.** (2010). “Mean Residual Life.” *International Encyclopedia of Statistical Science*, Part 13, 791-792, Springer, New York.
5. Brooks, J.P., Rivera, M., Boone, E.L., **Edwards, D.J.**, Wang, Q., LaRosa, P. and Shannon, W. (2011). “Methods for the Analysis of Microbiome Data”. *Proceedings of the 6th INFORMS Workshop on Data Mining and Health Informatics (DM-HI2011)*.
6. Brooks, J.P., **Edwards, D.J.**, Sorrell, T.P., Srinivasan, S. and Diehl, R.L. (2011). “Simulating Calls for an Urban Police Department”. *Proceedings of the 2011 Winter Simulation Conference (WSC)*. 1770-1777.
7. **Edwards, D.J.**, Guess, F.M. and Young, T.M. (2011). “Bootstrap Confidence Intervals for Estimating Percentiles of Reliability of Modern Engineered Wood”. *Wood Science and Technology*, 45(3), 533-546.
8. **Edwards, D.J.** and Truong, D.H.Q. (2011). “A Comparison of Designs for One-Step Screening and Response Surface Estimation”. *Quality and Reliability Engineering International*, 27(8), 1009-1024.
9. **Edwards, D.J.** and Fuerte, J.N. (2011) “Compromise Ascent Directions for Multiple Response Applications”. *Quality and Reliability Engineering International*, 27(8), 1107-1118.

10. **Edwards, D.J.** and Mee, R.W. (2011). "Supersaturated Designs: Are Our Results Significant?" *Computational Statistics and Data Analysis*, 55(9), 2652-2664.
11. **Edwards, D.J.** (2011). "Optimal Semifoldover Plans for Two-Level Orthogonal Designs". *Technometrics*, 53(3), 274-284.
12. **Edwards, D.J.** and Mee, R.W. (2011). "Fractional Box-Behnken Designs". *Journal of Quality Technology*, 43(4), 288-306.
13. **Edwards, D.J.**, Len, R.V., Young, T.M., Guess, F.M., and Crookston, K.A. (2012). "Comparison of Two Wood Plastic Composite Extruders Using Bootstrap Confidence Intervals on Measurements of Sample Failure Data". *Quality Engineering*, 25(1), 23-33.
14. La Rosa, P.S., Brooks, J.P., Deych, E., Boone, E.L., **Edwards, D.J.**, Wang, Q., Sodergen, E., Weinstock, G., and Shannon, B. (2012). "Power Calculations for Taxonomical-Based Analysis of Human Microbiome Data". *PLoS ONE*, 7(12): e52078.
15. Srinivasan, S., Sorrell, T.P., Brooks, J.P., **Edwards, D.J.**, and Diehl, R.L. (2013). "Workforce Assessment for an Urban Police Department: An Analytics Approach to Estimate Patrol Staffing". *Policing: An International Journal of Police Strategies and Management*, 36(4), 702-718.
16. **Edwards, D.J.** and Brooks, J.P. (2014). "Alternative Foldover Plans for Two-Level Nonregular Designs". *Communications in Statistics Simulation and Computation*, 43(1), 209-224.
17. **Edwards, D.J.**, Guess, F.M., Len, R.V., Young, T.M., and Crookston, K.A. (2014). "Improving Estimates of Critical Percentiles by Induced Censoring". *Reliability Engineering and System Safety*, 123, 47-56.
18. **Edwards, D.J.** and Kelly, K.D. (2014). "Selecting a D-optimal Follow-Up Design Among Candidate Choices". *Quality Engineering*, 26, 233-245.
19. **Edwards, D.J.** (2014). "Follow-up Experiments for Two-Level Fractional Factorial Designs Via Double Semifoldover". *Metrika*, 77, 483-507.
20. **Edwards, D.J.**, Weese, M.L. and Palmer, G.A. (2014). "Comparing Methods for Design Follow-up: Revisiting a Metal-Cutting Case Study". *Applied Stochastic Models in Business and Industry*, 30, 464-478.
21. Brooks, J.P., Fettweis, J.M., Serrano, M.G., Girerd, P.H., **Edwards, D.J.**, Strauss, J.F., Buck, G.A., Jefferson, K.K. (2014). "Differences in the vaginal microbiome and bacterial vaginosis in women of African versus European ancestry". *Microbiology*, 160, 2272-2282.
22. The Integrative HMP Research Network Consortium (including **Edwards, D.J.**) (2014). "The Integrative Human Microbiome Project: Dynamic Analysis of Microbiome-Host Omics Profiles during Periods of Human Health and Disease." *Cell Host and Microbe*, 16(3), 276-289.
23. Weese, M.L., Smucker, B.J., and **Edwards, D.J.*** (2015). "Searching for Powerful Supersaturated Designs". *Journal of Quality Technology*, 47(1), 66-84. (*Equal contribution from all authors.)
24. Young, T.M., Len, R.V., Chen, C.H., Chen, W., Guess, F.M., **Edwards, D.J.** (2015). "Robustly Estimating Lower Percentiles when Observations are Costly". *Quality Engineering*, 27(3), 361-373 .
25. Wilson, S. R., Leonard, R. D., **Edwards, D. J.**, Swieringa, K. A., and Murdoch, J. L. (2015). "Model Specification and Confidence Intervals for Voice Communication". *Quality Engineering*, 27(4), 402-415.

26. Brooks, J.P., **Edwards, D.J.**, Harwich, Jr., M.D., Rivera, M.C., Fettweis, J.M., Serrano, M.G., Reris, R.A., Sheth, N.U., Huang, B., Girerd, P.; Jefferson, K.K., Buck, G.A. (2015). "The Truth about Metagenomics: Quantifying and Counteracting Bias in 16S rRNA Studies". *BMC Microbiology*, 15:66.
27. Zeng, Y., Young, T.M, **Edwards, D.J.**, Guess, F.M., and Chen, C.-H. (2016). "Case Studies: A Study of Missing Data Imputation in Predictive Modeling of a Wood Composite Manufacturing Process." *Journal of Quality Technology*, 48(3), 284-296.
28. Wilson, S.R., Swieringa, K.A., Leonard, R.D., Freitag, E., and **Edwards, D.J.** (2017). "Statistical Engineering Approach to Improve the Realism of Computer Simulated Experiments with Trajectory Clustering." *Quality Engineering*, 29(2), 167-180.
29. Mee, R.W., Schoen, E.R., and **Edwards, D.J.** (2017). "Selecting an Orthogonal or Nonorthogonal Fractional Factorial Design for Screening." *Technometrics*, 59, 305-318.
30. Brooks, J.P., **Edwards, D.J.**, Blithe, D., Fettweis, J.M., Serrano, M.G., Strauss, J.F., Buck, G.A., and Jefferson, K.K. (2017). "Effects of Combined Oral Contraceptives, Depot Medroxyprogesterone Acetate, and the Levonorgestrel-releasing Intrauterine System on the Vaginal Microbiome." *Contraception*, 95, 405-413.
31. Ockuly, R.A., Weese, M.L., Smucker, B.J., **Edwards, D.J.**, and Le, C. (2017). "Response Surface Experiments: A Meta-Analysis." *Chemometrics and Intelligent Laboratory Systems*, 164, 64-75.
32. Weese, M.L, **Edwards, D.J.**, and Smucker, B.J. (2017). "Powerful Supersaturated Designs when Effect Directions are Known". *Journal of Quality Technology*, 49(3), 265-277.
33. Ellington, A., Whitenack, J., and **Edwards, D.J.** (2017). "Effectively Coaching Middle School Teachers: A Case for Teacher and Student Learning." *Journal of Mathematical Behavior*, 46, 177-195.
34. Brooks, J.P., Buck, G.A., Chen, G., Diao, L., **Edwards, D.J.**, Fettweis, J.M., Huzurbazar, S., Rakitin, A., Satten, G.A., Smirnova, E., Waks, Z., Wright, M.L., Yanover, C., and Zhou, Y.-H. (2017). "Changes in Vaginal Community State Types Reflect Major Shifts in the Microbiome". *Microbial Ecology in Health and Disease*, 28(1), 1303265.
35. Leonard, R.D. and **Edwards, D.J.** (2017). "Bayesian D-Optimal Screening Experiments with Partial Replication." *Computational Statistics and Data Analysis*, 115, 79-90.
36. Wilson, S.R., Leonard, R.D., **Edwards, D.J.**, Swieringa, K.A., and Underwood, M.C. (2017). "Inference of Under-Dispersed Data using Quasi-Poisson Regression." Submitted to *Quality Engineering*.
37. Farhat, N.J., Boone, E.L, and **Edwards, D.J.** (2017). "A New Method for Determining the Benchmark Dose Tolerable Region and Endpoint Probabilities for Toxicology Experiments." Submitted to *Journal of Risk Analysis*.
38. Jean, S., Huang, B., Brooks, J.P., **Edwards, D.J.**, Fettweis, J.M., Serrano, M.G., Sheth, N.U., Smirnova, E., Huzurbazar, S., Strauss, J.F., Jefferson, K.K., and Buck, G.A. (2017). "Multi-omic profiles discriminate characteristics of the vaginal environment in early pregnancy." Submitted to *PLoS ONE*, In Revision.
39. Gryder, R.W., Wilson, S.R., Swieringa, K., and **Edwards, D.J.** (2017). "Space-Filling Designs for Multi-Layered Continuous Nested Factors". Submitted to *Quality Engineering*.

40. Fettweis, J.M., Serrano, M.G., Brooks, J.P., **Edwards, D.J.**, et al. (2018). “The Vaginal Microbiome and Preterm Birth”. Submitted to *Nature*.

Working Papers:

1. “Tuning Parameters for Optimization Software using Designed Experiments” (with J.P. Brooks; target journal: *INFORMS Journal of Computing*)
2. “Optimal Follow-Up Designs for Ray Experiments in Toxicology” (with E.L. Boone and N. Farhat; target journal: *Journal of Statistical Planning and Inference*)
3. “An Exposition on Supersaturated Design Analysis with the Dantzig Selector” (with M.L. Weese and B.J. Smucker; target journal: *Technometrics*)
4. “Prediction in Response Surface Experiments” (with M.L. Weese and B.J. Smucker; target journal: *Technometrics*)
5. “Block Diagonal Structure of Two-Level Designs” (with R.W. Mee; target journal: *Statistica Sinica*)

RESEARCH FUNDING

Awarded:

1. National Institute of Aerospace/NASA, “Statistical Engineering for Airspace Technology Demonstration”, \$93,563; 2016-2018, PI.
2. NIH, “Transmission of Maternal Vaginal and Gut Microbiome and Obesity Risk in Offspring”, \$250,000; 2017-2019, Co-investigator, PI: Jennifer Fettweis.
3. NIH, “Global Omics and Viromics Initiative on Pregnancy”, \$3.8MM; 2017-2022, Co-investigator, PI: Greg Buck, Co-Investigator.
4. National Institute of Aerospace/NASA, “Statistical Engineering for Next Generation Air Transportation Systems II”, \$226,852; 2013-2016, PI.
5. Jeffress Trust in Interdisciplinary Research, “The Truth about Bacteria Metagenomics: Uncovering Bias using Mixture Effect Models”, \$100,000; 2013-2015, PI.
6. National Institute of Aerospace/NASA, “Statistical Engineering for Next Generation Air Transportation Systems”, \$53,875; 2012-2013, PI.
7. Simons Foundation, “Sequential Experimentation: When, Why, How?”, \$35,000; 2012-2016, PI.
8. NIH U54, “A Multi-omic Analysis of the Vaginal Microbiome during Pregnancy”, \$9.1MM; 2013-2017, Co-Investigator, PI: Greg Buck.
9. National Science Foundation, “MSP Institute: Mathematics Specialists in Middle Schools”, \$4,947,929; 2010-14, Co-Investigator, PI: William Haver.
10. Richmond Police Department, “RPD Workforce Assessment”, \$120,000; 2010-2012, Co-PI, PI: Robyn Diehl.

Pending:

1. FHI 360/NIH, “Depo Provera and Beyond: Understanding the Impact of Lower Dose Medroxyprogesterone Acetate and Long-Acting Contraceptives on Female Genital Tract Microbiome and Immunology”, \$1.1MM; 2018-2023, Co-Investigator, PI: Greg Buck.

2. NIH, "Biofilms in Health and Disease", \$13MM; 2018-2023, Co-Investigator, PI: Greg Buck.
3. National Science Foundation, "Collaborative Research: Powerful Regularization-Based Screening Experimentation for Process Optimization with Applications to Additive Manufacturing", \$515,000; 2018-2021, PI (VCU), Lead PI: Jonathan Stallings (NCSU).

RESEARCH PRESENTATIONS

1. Contributed Session, 57th Annual Meeting of the Forest Products Society, June 2003, Seattle, WA, "A Statistical Analysis of the Internal Bond of Medium Density Fiberboard".
2. Contributed Session, 8th International Conference on Information Quality, November 2003, Cambridge, MA, "Improving and Managing Information Quality in Forest Products". In reviewed proceedings.
3. Contributed Session, 51st Annual Fall Technical Conference, October 2007, Jacksonville, FL, "P-values for Lenth t-Statistics."
4. Contributed Session, 2007 Design and Analysis of Experiments (DAE), November 2007, Memphis, TN, "Empirically Determined p-values for Lenth t-Statistics."
5. Contributed Session, 87th Annual Meeting of the Virginia Academy of Science, May 2009, Richmond, VA, "Evaluating Statistical Significance in Supersaturated Designs."
6. Contributed Session, 2009 Quality & Productivity Research Conference, June 2009, Yorktown Heights, NY, "New Three-Level Designs for Factor Screening and Response Surface Exploration."
7. Contributed Session, 2009 Joint Statistical Meetings, August 2009, Washington, D.C. "Supersaturated Designs: Are Our Results Significant?"
8. Contributed Session, 53rd Annual Fall Technical Conference, October 2009, Indianapolis, IN, "Fractional Box-Behnken Designs."
9. Contributed Session, 2010 Joint Research Conference, May 2010, Gaithersburg, MD, "Another Look at Semifoldover for Two-Level Orthogonal Designs."
10. Contributed Session, 2010 Joint Statistical Meetings, August 2010, Vancouver, Canada, "Optimal Designs for Toxicology Studies with Multiple Responses and Multiple Stressors." Presented by Ed Boone, VCU.
11. Contributed Session, International Conference on Design of Experiments, May 2011, Memphis, TN, "Optimal Follow-up Experiments for Ray Designs in Toxicology Studies."
12. Contributed Session, 89th Annual Meeting of the Virginia Academy of Science, May 2011, Richmond, VA, "Compromise Ascent Directions for Multiple Response Applications."
13. Contributed Session, 2011 Joint Statistical Meetings, August 2011, Miami, FL, "Comparing Designs for One-Step Response Surface Methodology."
14. Invited Session, Quality and Productivity Research Conference, June 2012, Long Beach, CA, "Double Semifolding 2k-p Designs."
15. Topic-Contributed Session (Invited), 2012 Joint Statistical Meetings, August 2012, San Diego, CA, "Compromise Ascent Directions for Multiple Response Applications."

16. Invited Discussant, 1st Annual Stu Hunter Conference on Industrial Statistics, March 2013, Amsterdam, Netherlands, "Stu Hunters Contributions to Experimental Design and Quality Engineering."
17. Invited Session, European Network for Business and Industrial Statistics Annual Meeting, September 2013, Ankara, Turkey, "Selecting a D-optimal Follow-Up Experiment Among Candidate Choices."
18. Contributed Session, Fall Technical Conference, October 2013, San Antonio, TX, "Searching for Powerful Supersaturated Designs."
19. Invited Session, International Symposium on Business and Industrial Statistics, June 2014, Durham, NC, "Searching for Powerful Supersaturated Designs".
20. Invited Discussant, International Symposium on Business and Industrial Statistics, June 2014, Durham, NC, "A Posterior Predictive Approach to Process Conformance Optimization with Complex Multivariate Models".
21. Invited Session, Design and Analysis of Experiments (DAE), March 2015, Cary, NC, "Searching for Powerful Supersaturated Designs".
22. Poster Session, SAMSI Workshop: Discovering Complex Patterns in Human Microbiome Data (HMD), March 2015, Durham, NC, "Quality Control in Microbiome Experiments".
23. Contributed Session, Quality and Productivity Research Conference, June 2015, Raleigh, NC, "Selecting a Nonregular Fractional Factorial Design for Screening".
24. Contributed Session, Joint Statistical Meetings, August 2015, Seattle, WA, "The Truth About Metagenomics: Quantifying and Counteracting Bias in 16S rRNA Studies".
25. Invited Discussant, 4th Annual Stu Hunter Conference on Industrial Statistics, March 2016, Waterloo, Ontario, Canada.
26. Invited Session, Rigorous Test and Evaluation for Defense, Aerospace, and National Security, April 2016, Arlington, VA, "Supersaturated Designs: Construction and Analysis".
27. Contributed Session, Spring Research Conference, May 2016, Chicago, IL, "Constructing Powerful Supersaturated Designs When Effect Directions are Known".
28. Poster Session, Integrative Human Microbiome Consortium Annual Meeting, June 2016, Bethesda, MD, "Quality Control for Microbiome Experiments".
29. Topic-Contributed (Invited) Session, Joint Statistical Meetings, August 2016, Chicago, IL, "Quality Control for Microbiome Experiments".
30. Contributed Session, Fall Technical Conference, October 2016, Minneapolis, MN, "Considerations for Screening Experiments with Partial Replication".
31. Invited Session, INFORMS, November 2016, Nashville, TN, "Quality Control for Microbiome Experiments".
32. Invited Discussant, 5th Annual Stu Hunter Conference on Industrial Statistics, March 2017, Copenhagen, Denmark.
33. Invited Session, Science of Test Workshop, April 2017, Springfield, VA, "Design and Analysis of a Computer Experiment for an Aerospace Conformance Simulation Study".
34. Contributed Session, Joint Statistical Meetings, August 2017, Baltimore, MD, "Bayesian D-optimal Screening Experiments with Partial Replication".

35. *Technometrics* Invited Session, Fall Technical Conference, October 2017, Philadelphia, PA, “Selecting an Orthogonal or Nonorthogonal Two-Level Design for Screening”.
36. Invited Session, University of San Francisco Data Science Institute Conference, October 2017, San Francisco, CA, “Response Surface Methods: A Meta-Analysis”.

CONSULTING

1. Obsidien, Inc., Tappahannock, VA, “Assessment of Virginia Department of Healths Analysis of Alternative Wastewater Systems Data”, June-July 2010.
2. VCU Department of Chemistry, “Discovery and Design of Novel Permanent Magnets using non-strategic elements having supply chains”, June-August 2012.
3. Markel Insurance, “Business Analytics Training”, November 2013-April 2014.
4. Markel Insurance, “Statistics Training”, July 2014-August 2014.
5. Markel Insurance, “Segmentation Analysis”, June 2015-August 2015.
6. QualPro Inc., “Advanced Design of Experiments Training”, August 2016.
7. QualPro Inc., “Expert Level DOE Techniques: Special Topics”, August 2017.
8. Pfizer, Inc., “PCH University: Introduction to Design and Analysis of Experiments”, October 2017.

COLLOQUIUM PRESENTATIONS

1. University of Tennessee, Department of Statistics, Operations, and Management Science, “Empirically Determined P-values for Lenth t-Statistics”, October 2007.
2. Virginia Commonwealth University, Department of Statistical Sciences and Operations Research, “Contributions to Design and Analysis of Experiments”, January 2008.
3. University of North Florida, Department of Mathematics and Statistics, “Contributions to Design and Analysis of Experiments”, January 2008.
4. Mississippi State University, Department of Mathematics and Statistics, “Contributions to Design and Analysis of Experiments”, January 2008.
5. The College of William and Mary, Department of Mathematics, “Contributions to Design and Analysis of Experiments”, January 2008.
6. Virginia Commonwealth University, Department of Statistical Sciences and Operations Research Computational Seminar Series, “Introduction to MATLAB”, September 2009.
7. Virginia Commonwealth University, Department of Statistical Sciences and Operations Research Seminar Series, “Optimal Semifoldover Plans for Two-Level Orthogonal Designs”, October 2010.
8. Virginia Commonwealth University, Mathematics Club Undergraduate Seminar Series, “Experimental Designs”, November 2010.
9. Virginia Commonwealth University, Department of Statistical Sciences and Operations Research Seminar Series, “Topics in Response Surface Methodology”, October 2011.

10. Virginia Commonwealth University, Department of Statistical Sciences and Operations Research Seminar Series, “Follow-up Experiments Via Double Semifoldover”, September 2012.
11. NASA Langley Research Center, Statistical Engineering Group Colloquium Series, “Designs and Analysis for One-Step Response Surface Methodology”, August 2012.
12. University of Richmond, Department of Mathematics and Computer Science Colloquium Series, “Can Design of Experiments Help Uncover the Truth?”, February 2013.
13. Virginia Commonwealth University, Department of Biostatistics Seminar Series, “Double Semifolding Fractional Factorial Designs”, March 2013.
14. Miami University (Ohio), Department of Statistics Seminar Series, “Selecting a D-optimal Follow-Up Design Among Candidate Choices”, November 2013.
15. Virginia Commonwealth University, Microbiome Forum, “Control Experiments for Reproducible Microbiome Research”, February 2015.
16. Arizona State University, School of Computing, Informatics, and Decision Systems Engineering Seminar, “Screening Experiments with Partial Replication”, March 2017.
17. Virginia Commonwealth University INFORMS Student Chapter Seminar, “I’ve Got a PhD...Now What?”, April 2017.

TEACHING

Courses Taught:

Virginia Commonwealth University

1. STAT 212 – Concepts of Statistics (6 times)
2. STAT 435 – Industrial Statistics (3 times)
3. STAT 541 – Applied Statistics for Engineers and Scientists (2 times)
4. STAT 546 – Linear Models Theory (8 times)
5. STAT 642 – Design and Analysis of Experiments (10 times)
6. STAT 650 – Response Surface Methodology (5 times)
7. STAT 742 – Advanced Design and Analysis of Experiments (4 times)
8. SYSM 681 – Systems Seminar I (2 times)
9. SYSM 683 – Systems Seminar III (1 time)
10. MATH 591 – Applied Statistics for High School Teachers (1 time)
11. MATH 664 – Probability and Statistics for Teachers (1 time)
12. DAPT 621 – Statistics for the World of Big Data: Building Linear Statistical Models (3 times)
13. DAPT 622 – Statistics for the World of Big Data: Multivariate Methods (3 times)

The University of Tennessee

1. STAT 201 – Introduction to Statistics (8 times)
2. STAT 483 – Intermediate Statistics (3 times)

Guest Lectures:

1. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Introduction to Design and Analysis of Experiments”, October 2010
2. VCU Department of Mechanical Engineering, ENGR 591 – Topics: Introduction to Statistical Quality Control, “Design and Analysis of Engineering Experiments”, April 2011
3. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Introduction to Design and Analysis of Experiments”, October 2011
4. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2012.
5. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2013.
6. VCU Department of Chemical and Life Sciences Engineering, CLSE 656 – Advanced Chemical Reaction, “Design and Analysis of Engineering Experiments”, January 2014.
7. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2014.
8. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2015.
9. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2016.
10. VCU Department of Chemical and Life Sciences Engineering, ENGZ 402/ENGR 591 – Topics in Chemical Process Development, “Design and Analysis of Engineering Experiments”, September 2017.

Non-course Teaching

- STAT 697 – Directed Research
 1. Kevin Kelly (3 credits)
 2. Robert Leonard (2 credits)
- STAT 698 – Thesis:
 1. David Truong (6 credits)
 2. Jeffrey Fuerte (6 credits)
 3. Bridgette Briggs (7 credits)
 4. Kevin Kelly (6 credits)
 5. Lindsey Nicely (3 credits)
 6. Lisa Kessel (3 credits)
 7. Ryan Gryder (6 credits)

- SYSM 697 – Systems Research:
 1. Shuchi Jain (3 credits)
 2. Robert Leonard (3 credits)
 3. Tianchi Zhang (3 credits)

Teaching-Related Publications

1. Edwards, D.J. (2012). “Tell It Like It is!” *Statistics Education Web (STEW)*. Available at <http://www.amstat.org/education/stew/pdfs/TellItLikeItIs.pdf>.

CURRICULUM DEVELOPMENT

1. Created and introduced STAT 435 – Industrial Statistics (taught first as STAT 391 –Topics)
2. Co-chair of the Undergraduate Statistics Curriculum Revision Committee, 2010–2011
3. Course development team leader for the creation of Probability and Statistics for High School Teachers, Summer 2013

ADVISING

Ph.D. Dissertation Supervision

1. Robert Leonard, Systems Modeling and Analysis, August 2015
2. Naha Farhat, Biostatistics, May 2014 (co-advisor with Ed Boone)
3. Toni Sorrell, Systems Modeling and Analysis, December 2017 (co-advisor with Paul Brooks)
4. Tianchi Zhang, Systems Modeling and Analysis, Continuing
5. Ahlam Alzharani, Systems Modeling and Analysis, Continuing
6. Faten Alamri, Systems Modeling and Analysis, Continuing (co-advisor with Ed Boone)

M.S. Thesis Supervision

1. Charles Stewart, Operations Research, May 2010 (co-advisor with Paul Brooks)
2. David Truong, Statistics, May 2010
3. Jeffrey Fuerte, Statistics, May 2010
4. Bridgette Briggs, Statistics, May 2011
5. Kevin Kelly, Statistics, May 2012
6. Lindsey Nicely, Statistics, May 2012
7. Radha Koripalli, Statistics, August 2012 (co-advisor with Paul Brooks)
8. Lisa Kessel, Statistics, May 2013
9. Ryan Gryder, Statistics, May 2016
10. Rebecca Ockuly (Miami University), Statistics, May 2016

Ph.D. Committees

1. Jean Nelson, Integrative Life Sciences, December 2009
2. Sheri Shiflett, Integrative Life Sciences, August 2013
3. Adam Sima, Biostatistics, May 2013
4. Sudharshana Srinivasan, Systems Modeling and Analysis, May 2014
5. Derick Rivers, Systems Modeling and Analysis, December 2014
6. Racheal Cooper, Systems Modeling and Analysis, May 2016
7. David Vairo, Systems Modeling and Analysis, Continuing
8. Hossein Rekabdarkolae, Systems Modeling and Analysis, May 2017
9. Sepehr Piri, Systems Modeling and Analysis, August 2017
10. Dogucan Maziogoclu, Systems Modeling and Analysis, August 2017
11. Nicole Jimenez, Microbiology and Immunology, Continuing
12. Marcella Torres, Systems Modeling and Analysis, Continuing

M.S. Committees

1. Manish Patel, Biology, December 2008
2. Morgan Gostel, Biology, July 2010
3. Shuchi Jain, Statistics, May 2009
4. Virginia Patterson, Health and Human Performance, Withdrew from program
5. Rebecca Clark, Mathematics, August 2016

Publications with Students

1. Edwards, D.J. and Truong, D.H.Q. (2011). "A Comparison of Designs for One-Step Screening and Response Surface Estimation." *Quality and Reliability Engineering International*, 27(8), 1009-1024.
2. Edwards, D.J. and Fuerte, J.N. (2011) "Compromise Ascent Directions for Multiple Response Applications." *Quality and Reliability Engineering International*, 27(8), 1107-1118.
3. Brooks, J.P., Edwards, D.J., Sorrell, T.P., Srinivasan, S. and Diehl, R.L. (2011). "Simulating Calls for an Urban Police Department". *Proceedings of the 2011 Winter Simulation Conference (WSC)*. 1770-1777.
4. Srinivasan, S., Sorrell, T.P., Brooks, J.P., Edwards, D.J., and Diehl, R.L. (2013). "Workforce Assessment for an Urban Police Department: An Analytics Approach to Estimate Patrol Staffing". *Policing: An International Journal of Police Strategies and Management*, 36(4), 702-718.
5. Edwards, D.J., Weese, M.L. and Palmer, G.A. (2014). "Comparing Methods for Design Follow-up: Revisiting a Metal-Cutting Case Study." *Applied Stochastic Models in Business and Industry*, 30, 464-478.
6. Edwards, D.J. and Kelly, K.D. (2014). "Selecting a D-optimal Follow-Up Design Among Candidate Choices". *Quality Engineering*, 26, 233-245.
7. Wilson, S. R., Leonard, R. D., Edwards, D. J., Swieringa, K. A., and Murdoch, J. L. (2015). "Model Specification and Confidence Intervals for Voice Communication," *Quality Engineering*, 27(4), 1-14.

8. Wilson, S.R., Leonard, R.D., Edwards, D.J., Swieringa, K.A., and Underwood, M.C. (2017). "Inference for Under-Dispersed Data using Quasi-Poisson Regression." Submitted to *Quality Engineering*.
9. Wilson, S.R., Swieringa, K.A., Leonard, R.D., Freitag, E., and Edwards, D.J. (2017). "Statistical Engineering Approach to Improve the Realism of Computer Simulated Experiments with Trajectory Clustering." *Quality Engineering*, 29(2), 167-180.
10. Farhat, N.J., Boone, E.L, and Edwards, D.J. (2017). "A New Method for Determining the Benchmark Dose Tolerable Region and Endpoint Probabilities for Toxicology Experiments." Submitted to *Journal of Risk Analysis*.
11. Leonard, R.D. and Edwards, D.J. (2017). "Bayesian D-Optimal Screening Experiments with Partial Replication." *Computational Statistics and Data Analysis*.
12. Gryder, R.W., Wilson, S.R., Swieringa, K., and Edwards, D.J. (2017). "Space-Filling Designs for Multi-Layered Continuous Nested Factors". Submitted to *Quality Engineering*.

SERVICE

Department and College

1. Textbook Committee, 2008–2013
2. Co-chair, Undergraduate Statistics Curriculum Revision Committee, 2010–2011
3. Co-chair, SSOR Seminar Series, 2010–2012
4. Humanities & Sciences Grade Appeal Committee, Fall 2010
5. Statistics Instructor Search Committee, Spring 2011, Spring 2016
6. Statistics Faculty Search Committee, 2012–2015
7. MS Program Advisor, 2013–current
8. Tenure and Promotion Committee for Qin Wang, 2014
9. Third-Year Review Committee for Spencer Hays, 2015
10. Promotion Committee for Amy Kimbrough, 2016
11. H&S Dean's Research Advisory Council, 2016–present
12. Tenure and Promotion Committee for Spencer Hays, 2017
13. Data Science Faculty Search Committee, 2017-2018
14. H&S Strategic Planning Leadership Committee, 2018–present
15. Third-Year Review Committee (Chair) for Qiong Zhang, 2018

Professional Organizations

1. American Society for Quality, Division of Chemical and Process Industries representative on the 2011 Fall Technical Conference Program Committee.
2. American Statistical Association, Section on Quality and Productivity, Program Chair, 2011–2012.
3. American Statistical Association, Section on Quality and Productivity, Chair of the 2012 Fall Technical Conference Program Committee.

4. American Society for Quality, Division of Chemical and Process Industries, General Chair, 2014 Fall Technical Conference, Richmond, VA.
5. American Statistical Association, Section on Quality and Productivity, Chair-elect, 2014; Chair, 2015; Past-chair, 2016.
6. American Statistical Association, Section on Quality and Productivity, Fall Technical Conference Steering Committee Representative, 2016 – current.
7. American Society for Quality, Division of Chemical and Process Industries, *Technometrics* Wilcoxon and Youden Prize Committee, 2017-2018.
8. American Statistical Association, Section on Quality and Productivity, Gerald J. Hahn Q&P Achievement Award Committee, 2016 – current.

Conference Support

1. Referee for the 10th International Conference on Information Quality, 2005
2. Session Chair, “Robustness and Optimality in Experimental Design”, ASA Q&P/SPES Joint Research Conference, May 2010.
3. Session Chair, “Data Streams, Web Pages, and Image Analysis”, Joint Statistical Meetings, August 2011.
4. Session Chair, “Space Filling Designs & CUSUM”, Fall Technical Conference, October 2011.
5. Session Chair, “Robustness and Optimization in DOE”, Fall Technical Conference, October 2011.
6. Session Chair, “Design and Analysis of Computer Experiments”, Quality and Productivity Research Conference, June 2012.
7. Session Chair, “Q&P Invited Session Computer Experiments”, Fall Technical Conference, October 2012.
8. Session Chair, “Design of Experiments with Functional Input”, ENBIS-13, Ankara, Turkey, September 2013.
9. Session Chair, “Profile Monitoring”, International Symposium on Business and Industrial Statistics, Durham, NC, June 2014.
10. Co-organizer of the SAMSI mid-year workshop “Discovering Patterns in Human Microbiome Data (HMD)”, March 16–18, 2015.
11. Session Chair, “Sequential Experimentation”, Fall Technical Conference, Minneapolis, MN, October 2016.
12. Session Chair, “Statistics for Computer Experiments: Collaboration Between Industry and Academia”, Joint Statistical Meetings, Baltimore, MD, August 2017.
13. Session Chair, “SPES Invited Session (Design of Experiments)”, Fall Technical Conference, Philadelphia, PA, October 2017.

Editorial Service

1. Associate Editor, *Technometrics*, 2016–current
2. Associate Editor, *Statistics Education Web (STEW)*, 2011–2014
3. Editorial Review Board, *Journal of Quality Technology*, 2012–current
4. Editorial Review Board, *Quality Engineering*, 2013–current

5. Editorial Review Board, *Quality and Reliability Engineering International*, 2016–current

Journal Refereeing

1. *Technometrics*
2. *Journal of Quality Technology*
3. *Quality and Reliability Engineering International*
4. *INFORMS Transactions on Education*
5. *Metron, International Journal of Statistics*
6. *Journal of Statistical Computation and Simulation*
7. *Journal of Pharmaceutical Innovation*
8. *Communications in Statistics Theory and Methods*
9. *Statistics Education Web*
10. *The American Statistician*
11. *Computational Statistics and Data Analysis*
12. *Metrika*
13. *Journal of Statistical Planning and Inference*
14. *Quality Engineering*
15. *Applied Stochastic Models in Business and Industry*
16. *Computational Statistics*
17. *Reliability Engineering and System Safety*
18. *IEEE Access*
19. *Journal of Uncertainty Quantification*

Grant Reviewing

1. Reviewer for grant proposal “Robust Designs for Modern Functional Brain Imaging Experiments”, National Security Agency American Mathematical Society
2. Reviewer for 2015 Presidential Research Quest Fund (PeRQ) applications
3. Reviewer for grant proposal “Beyond Definitive Screening Designs”, Research Foundation - Flanders (FWO)

AWARDS

- Chancellors Citation for Extraordinary Academic Achievement, The University of Tennessee, 2004
- Chancellors Citation for Extraordinary Professional Promise, The University of Tennessee, 2004
- Department of Statistics, Graduate Student Excellence Award, The University of Tennessee, 2004
- Graduate Student Excellence in Teaching Award, Finalist, The University of Tennessee, 2007

- College of Humanities and Sciences Excellence in Scholarship Award, Nominated, Virginia Commonwealth University, 2014
- College of Humanities and Sciences Excellence in Scholarship Award, Nominated, Virginia Commonwealth University, 2015
- College of Humanities and Sciences Excellence in Scholarship Award, Nominated, Virginia Commonwealth University, 2016
- College of Humanities and Sciences Excellence in Scholarship Award, Nominated, Virginia Commonwealth University, 2017

MEMBERSHIPS

- Pi Mu Epsilon, National Mathematics Honor Society
- Mu Sigma Rho, National Statistics Honor Society
- Phi Beta Kappa, National Honor Society
- American Statistical Association (ASA)
- American Society for Quality (ASQ)
- Virginia Academy of Science (VAS)
- European Network for Business and Industrial Statistics (ENBIS)