

RICHARD N. MCGRATH

**APPLIED STATISTICS AND OPERATIONS RESEARCH
BOWLING GREEN STATE UNIVERSITY**

I. Academic Degrees

Ph.D., Statistics, The Pennsylvania State University, 2000

M.S., Statistics (with an option in Quality and Productivity) from Rutgers, The State University of New Jersey, 1996

B.S., Industrial and Management Systems Engineering, The Pennsylvania State University, 1983

II. Academic Positions

Professor of Statistics, Bowling Green State University, 2017 - present

Associate Dean, College of Business Administration, Bowling Green State University, 2012-2017

Professor of Statistics, Bowling Green State University, 2011-2012

Associate Professor of Statistics, Bowling Green State University, 2005-2011

Visiting Associate Professor of Statistics, University of Michigan, 2007-2008

Assistant Professor of Statistics, Bowling Green State University, 2000-2005

Graduate Lecturer, The Pennsylvania State University, 1997-2000

Graduate Assistant, The Pennsylvania State University, 1996-1997

Instructor/Course Developer, AT&T, 1988-1995

III. Non-academic Positions

Business Quality Manager, AT&T Data Communications Services, 1995-1996

Instructor/Course Developer, AT&T Bell Laboratories Technical Education Center, 1988-1995

Product Assurance Engineer, AT&T Federal Systems, 1986-1988

Manufacturing Control Engineer, AT&T Technology Systems, 1983-1986

IV. Teaching Experiences

1. Undergraduate Courses

Bowling Green State University

STAT 2110 - Elementary Statistics I, 1 year, last taught 2004

STAT 2120 - Elementary Statistics II, 10 years, last taught 2018

STAT 2000 – Using Statistics, 1 year, last taught 2007

University of Michigan

STAT 4700 – Introduction to Design of Experiments, 1 year, last taught 2007

Pennsylvania State University

STAT 1000 - Statistical Concepts and Reasoning, 1 year, last taught 1999

STAT 2000 - Elementary Statistics, 3 years, last taught 1999

2. Undergraduate-Graduate Courses

Bowling Green State University

STAT 4020/5020 - Regression Analysis, 4 years, last taught 2006

STAT 4060/5060 - Sample Design, 7 years, last taught 2007

STAT 4080/5080 – Experimental Design, 6 years, last taught 2021

STAT 4120/5120 – Applied Nonparametric Statistics, 2 years, last taught 2005

STAT 4140/5140 – Statistical Quality Control, 1 year, last taught 2004

3. Graduate Courses

Bowling Green State University

MBA 6510 – Business Analytical Tools for Managerial Decisions, 9 years, last taught 2021

MBA 6520 – Business Tools, 2 years, last co-taught 2008, last taught 2009

STAT 6010 - Statistics for Managerial Decision Making, 13 years, last taught 2020

STAT 6200 – Experimental Design II, 5 years, last taught 2011

STAT 6750 – Research Methods in Statistics, 7 years, last taught 2020

University of Michigan

STAT 570 – Design of Experiments, 1 year, last taught 2008

Pennsylvania State University

STAT 502 - Analysis of Variance, 3 years, last taught 1999

4. Other Teaching.

McGrath, R. N., “Statistical Gaffs and Guffaws: Some Funny (and not so funny) Statistical Mistakes,” presented at *AP Statistics Conference*, Bowling Green, OH, April 22, 2006.

McGrath, R. N., “Statistical Gaffs and Guffaws: Some Funny (and not so funny)

Statistical Mistakes," presented to *Toledo Section of American Society for Quality*, Toledo, OH, April 20, 2006.

Co-delivered one-day seminar "Data Analysis and Decision Support Using Microsoft Excel" at BGSU, May 2006, May 2005, March 2003, and March 2002.

Co-developed and delivered one-day workshop "Analyzing Fractional Factorial Designs in the Presence of Dispersion" at the Joint Statistical Meetings, Atlanta, GA, August 4, 2001.

AT&T Bell Laboratories Technical Education Center (1988-1995)

Probability and Statistics
Statistical Process Control
Design of Experiments (Classical)
Robust Design (Taguchi Techniques)
Supplier Quality Management
Process Quality Management and Improvement

5. Thesis and Dissertation Students

- a. Thesis Advisor for:
 - Anna Taylor, M.S. Applied Statistics, BGSU Spring 2020
 - Terri Torres, M.S. Applied Statistics, BGSU, Summer 2010
 - Rainier Sabangan, M.S. Applied Statistics, BGSU, Summer 2010
 - Volodymyr Melnykov, M.S. Applied Statistics, BGSU, Spring 2005
 - Philip Twumasi-Ankrah, M.S. Applied Statistics, BGSU, Fall 2002

6. Membership on Dissertation Committees:

Kyle Leber, M.S.A.S. BGSU, 2006
Donna Hale, Ph.D. Communications Studies, BGSU, 2005
Jin Xu, Ph.D. Mathematics, BGSU, 2004
Stephen Fogo, Ed.D. Leadership Studies, BGSU, 2002

V. Curriculum Development

Member of Data Science PhD and MS program development committee, Spring 2016 – Spring 2018. The first Data Science PhD in Ohio was developed and approved during this time.

Chair of CBA Undergraduate Curriculum Committee, Fall 2008 – Spring 2010. A major revision to the BSBA was developed and approved during this time.

Member of CBA Curriculum Innovation Task Force, Fall 2008 – Fall 2010.

Member of CBA Specializations subcommittee, Fall 2006 – Spring 2007.

Chair of CBA Prerequisite Knowledge subcommittee, Spring 2005.

Co-developed the Stat 601 Learning Package for the Executive MBA program (2004).

Co-Chair of Stat 211/212 redesign team (2003-2004). This team developed the pilot study of assessing prerequisite knowledge in Stat 212

Chair of OR 380 prerequisite knowledge assessment team, (2003-2004).

Member of Statistics Program Committee, Fall 2001 – 2007

VI. Professional Development

AACSB Continuous Improvement Review Seminar, Spring 2021

Fall Technical Conference Program Committee Member, Spring 2019 – Spring 2020

Mosaic: Prevent Discrimination and Harassment Together, Fall 2018, Fall 2019

Mosaic: Prevent Sexual Violence Together, Fall 2018, Fall 2019

AACSB Accreditation Conference, 2015

AACSB Applied Assessment Seminar, 2015

AACSB International Conference and Annual Meeting, 2013

AACSB Accreditation Conference, 2012

AACSB Assessment Seminar, 2012

AACSB Assessment Conference, 2012

AACSB Maintenance of Accreditation Seminar, 2011

Wikis and Blogs Workshop, BGSU CTLT 2008

Online Course Development Course, 2006

Snap Workshop, 2006

Member of Research/Teaching Faculty Learning Community, 2003-2004

SPAR workshop, 2001

Blackboard Training, 2001

Portfolio Review Workshop, 2000

WebCT workshop, 2000

New Faculty Focus Group, 2000

VII. Graduate Academic Advising

2020-2021 four MSAS students

2019-2020 six MSAS students

2018-2019 12 MSAS students

2011–2012 - MSAS Graduate Coordinator

2008–2011 - MSAS Graduate Coordinator for admitted students

2011-2012– five MSAS students

2010-2011– five MSAS students

2009-2010– six MSAS students

2008-2009 – eight MSAS students

2006-2007 – four MSAS students, four MOD students

2005-2006 – five MSAS students, eight MOD students
2004-2005 – six MSAS students, eight MOD students
2003-2004 – eight MSAS students, five MOD students
2002-2003 – four MSAS students
2001-2002 – four MSAS students
2000-2001 – three MSAS students

Developed and graded three of the nine questions on the 2018-2021 M.S. in Applied Statistics Comprehensive Exams – Applied Statistics Segment.

Developed and graded three of the nine questions on the 2005-2010 M.S. in Applied Statistics Comprehensive Exam – Applied Statistics Segment. Co-proctored exams with other faculty

Developed and graded six of the nine questions on the 2001-2004 M.S. in Applied Statistics Comprehensive Exam – Applied Statistics Segment. Co-proctored exams with other faculty.

VIII. Research Interests

Experimental design and analysis, computer experiments, statistical process control, sampling

IX. Research Projects and Grants

Bowling Green State University, 2004, Student Achievement Assessment Grant (\$4,000) with John Hoag
Consolidated Biscuit Company, 2004, Funding for full year (8/04-8/05) graduate internship (\$16,014)
Consolidated Biscuit Company, 2002, Funding for full year (8/02-8/03) graduate internship (\$15,741)
Bowling Green State University, 2002, Summer Research Grant (\$2500)
Bowling Green State University, 2001, Summer Research Grant (\$2500)
Bowling Green State University, 2000-2001, Tech Travel Grant (\$471)
Bowling Green State University, 2000-2001, Tech Laptop Grant (\$1300)

X. Publications

1. Books and Book Chapters

McGrath, R. N. and Lin, D. K. J. (accepted 2009) “Quality by Design for the Pharmaceutical Industry” in *Pharmaceutical Sciences Encyclopedia: Drug Discovery, Development, and Manufacturing*, S. Gad (Ed.). John Wiley & Sons Inc.

McGrath, R. N. (2007) “Generalized Linear Models”, in *Encyclopedia of Statistics in Quality and Reliability*, Ruggeri, F., Kenett, R. and Faltin, F. W.

(eds). John Wiley & Sons Ltd, Chichester, UK, pp 733-743.

McGrath, R. N. and Lin, D. K. J. (2007) "Aliasing in Fractional Designs", *Encyclopedia of Statistics in Quality and Reliability*, in *Encyclopedia of Statistics in Quality and Reliability*, Ruggeri, F., Kenett, R. and Faltin, F. W. (eds). John Wiley & Sons Ltd, Chichester, UK, pp 95-100.

Member of writing teams of four books in AT&T's Quality Library:

- Supplier Quality Management - Supplier Monitoring and Improvement (1995)
- Supplier Quality Management - Supplier Selection and Qualification (1994)
- Supplier Quality Management - Getting Started (1994)
- Analyzing Business Process Data: Through the Looking Glass (1990)

2. Refereed Journal Articles

Yeh, A. B., Huwang, L, McGrath, R. N., and Zhang, Z. (2010) "On Monitoring Process Variance with Individual Observations", *Quality and Reliability Engineering International*.

McGrath, R. N. and Chen, Q. (2008) "Sample Size Determination for a Relative Quality Improvement," *Quality Engineering*, 20, 309-320.

Yeh, A. B., McGrath, R. N., Sembower, M. A., and Shen, Q. (2008) "EWMA Control Charts for Monitoring High-Yield Processes Based on Non-transformed Observations," *International Journal of Production Research*, 46, 5679-5699.

Yeh, A. B., Lin, D. K. J., and McGrath, R. N. (2006) "Multivariate Control Charts for Monitoring Covariance Matrix: A Review," *Quality Technology and Quantitative Management*, 3, 415-436.

McGrath, R. N. and Yeh, A. B. (2005) "A Quick, Compact, Two-Sample Dispersion Test: Count Five", *The American Statistician*, 59, 47-53.

McGrath, R. N. and Lin, D. K. J. (2003) "Analyzing Location and Dispersion in Unreplicated Fractional Factorials", *Statistics and Probability Letters*, 65, 369-377.

McGrath, R. N. (2003). "Separating Location and Dispersion Effects in Unreplicated Fractional Factorials" *Journal of Quality Technology*, 35, 306-316.

McGrath, R. N. and Lin, D. K. J. (2002). "A Nonparametric Dispersion Test for Unreplicated Two-Level Fractional Factorial Designs" *Journal of Nonparametric Statistics*, 14, 699-714.

McGrath, R. N., and Lin, D. K. J. (2001). "The Confounding Relationship of Location and Dispersion Effects in Unreplicated Fractional Factorial Designs" *Journal of Quality Technology*, 33, pp 129-139.

McGrath, R. N., and Lin, D. K. J. (2001). "Testing Multiple Dispersion Effects in Unreplicated Fractional Factorial Designs," *Technometrics*, 43, pp 406-414.

3. Professional presentations that are published in nonrefereed Proceedings.

McGrath, R. N. and Lin, D. K. J., (1999) "Location and Dispersion Effect Inference in Unreplicated Fractional Factorial Designs," *Proceedings of the Section on Physical and Engineering Sciences of the American Statistical Association*.

Harkness, W., Buchanan, P., Chow, M., Heckard, R., McGrath, R., and Simon, L., (1999) "Two Large Data Sets Collected From Students and Illustrations of Their Use," *Proceedings of the Section on Statistical Education of the American Statistical Association*.

XI. Papers Read to Professional Societies

Non-refereed papers

McGrath, R. N. "Dispersion Contrasts," presented at *Joint Statistical Meetings*, Vancouver, Canada, August 5, 2010.

McGrath, R. N., Chen, Q. "Sample Size Determination for a Relative Quality Improvement," presented at *ASQ Toledo Section Meeting*, Toledo, OH, April 2008.

McGrath, R. N., Yeh, A. B., Zhang, N. and Zheng, Y. "Estimation of Transmitted Errors in Computer Experiments," presented at *Fall Technical Conference*, Columbus, OH, October, 2006.

McGrath, R. N., Yeh, A. B., and Zheng, Y. "Estimation of Transmitted Errors in Computer Experiments," presented at *Joint Statistical Meetings*, Minneapolis, MN, August 8, 2005.

McGrath, R. N., Yeh, A. B., and Zheng, Y. "Estimation of Transmitted Errors in Computer Experiments," Invited paper at *International Chinese Statistical Association Applied Statistics Symposium*, Bethesda, MD, June 2005.

McGrath, R. N. "Model Selection in the Presence of Multiple Dispersion Effects in Unreplicated Fractional Factorials," presented at *Joint Statistical Meetings*, Toronto, Canada, August 12, 2004.

McGrath, R. N. and Yeh, A. B. "The Simplest Two Sample Scale Test: Count Five," presented at *995th AMS Meeting*, Athens, OH, March 26, 2004.

McGrath, R. N., "Recent Advances in Experimental Design and Analysis," presented to *Toledo Section of American Society for Quality*, Toledo, OH, September 25, 2003.

McGrath, R. N. and Yeh, A. B. "The Simplest Two Sample Scale Test: Count Five," presented at *Joint Statistical Meetings*, San Francisco, CA, August 13, 2003.

McGrath, R. N., "Separating Location and Dispersion Effects in Unreplicated Fractional Factorial Designs," presented at *Spring Research Conference*, Dayton, OH, June 5, 2003.

McGrath, R. N. and Lin D. K. J. "A Nonparametric Dispersion Test for Unreplicated Two-Level Fractional Factorial Designs," presented at *Joint Statistical Meetings*, New York, NY, August 13, 2002.

McGrath, R. N. and Lin D. K. J. "A Nonparametric Dispersion Test for Unreplicated Two-Level Fractional Factorial Designs," poster at *Design and Analysis of Experiments I*, Vancouver, British Columbia, July 16, 2002.

McGrath, R. N. and Lin D. K. J. "Testing Multiple Dispersion Effects in Unreplicated Fractional Factorial Designs," presented at *Spring Research Conference*, Ann Arbor, MI, May 21, 2002.

McGrath, R. N., "Dispersion Effects in Unreplicated Fractional Factorial Designs: Some Problems and Some Solutions," presented at Wright State University, April 5, 2002.

McGrath, R. N., "Separating Location and Dispersion Effects in Unreplicated Fractional Factorial Designs," presented at invited session of *Joint Statistical Meetings*, Atlanta, GA, August 8, 2001.

McGrath, R. N. and Lin, D. K. J. "The Confounding Relationship of Location and Dispersion Effects in Unreplicated Fractional Factorial Designs," Invited paper in *Journal of Quality Technology* Session at INFORMS Conference, San Antonio, TX, November 6, 2000

McGrath, R. N. and Lin D. K. J. "Testing Multiple Dispersion Effects in Unreplicated Fractional Factorial Designs," Contributed paper at *Joint Statistical Meetings*, Indianapolis, IN, August 16, 2000

McGrath, R. N., and Lin, D. K. J., "Location and Dispersion Effects in Unreplicated Fractional Factorials: Chicken or Egg?" presented at *First Midwest Conference for New Directions in Experimental Design*, Columbus, OH, May 19, 2000

McGrath, R. N. and Lin D. K. J. "The Confounding Relationship of Location and Dispersion Effects in Unreplicated Fractional Factorial Designs," presented at *Quality and Productivity Research Conference*, Schenectady, NY, May 20, 1999

XII. Service

Department

Tenure-track Faculty Search Committee (Chair) – 2019-2020
Qualified Rank Faculty Search Committee (Chair) – 2019-2020
Tenure-track Faculty Search Committee, 2 positions (Chair) – 2018-2019
Merit Committee 2001- ongoing
Statistics Program Committee 2001-2007
Department Library Representative, 2000-2002
Departmental meeting secretary, 2000-2001
Seminar coordinator, 2001

College

Committee to Advance Research Productivity (CARP), member 2018 – present,
Chair 2020 – present
MBA Assurance of Learning sub-committee 2019 - present
Accreditation Team, 2012-2017
CBA Awards Committee, 2010
CBA Strategic Planning Committee, 2006-2007, 2008-2009
CBA Graduate Advisory Council, 2003-2007, 2008-2009, 2018-2019
Chair 2019-2020
MOD Committee 2003-2007
CBA Faculty Council 2002-2005
Summer Research Grant subcommittee, 2003
MBA Committee 2002-2004, 2008- 2010
MBA Scholarship Committee member, 2003-2007
CBA Undergraduate Curriculum Learning and Assessment Committee (formerly
Curriculum Committee) 2010-2012
CBA Undergraduate Curriculum Committee, 2001, 2002-2007, 2008 – 2010
Chair 2004-2005, 2006-2007, 2008-2009, 2009-2010
Vice-chair 2003-2004, 2005-2006
Business Knowledge Assessment subcommittee (2011-present)
Specializations subcommittee member, 2006-2007
Prerequisite Knowledge Assessment Subcommittee, Chair 2005
Ethics subcommittee member, 2002-2004
Curriculum Innovation Task Force (2008-2009)
AACSB Accreditation Faculty Development subcommittee, 2001-2002
Computer Activities Committee, 2000-2002

University

Undergraduate Council, 2004-2007, 2009-2010, 2011-2012
Graduate Council 2011-2017
Chair, Curriculum and Degree Programs Review Committee (2012-2015)
Fiscal Affairs Advisory Committee, 2012
ESOL Committee, 2008 – 2012

Quantitative Literacy Subcommittee, 2010 – 2012
Selection Committee for Council of Graduate Schools and University Microfilms
International Distinguished Dissertation Award, 2004

Professional

Past Chair, American Society for Quality, Statistics Division, 2018

Chair, American Society for Quality, Statistics Division, 2017

Chair Elect, American Society for Quality, Statistics Division, 2016

Secretary, American Society for Quality, Statistics Division 2010- 2012

Chair, Toledo Section of American Society for Quality, 2012-2013

Chair Elect, Toledo Section of American Society for Quality, 2011-2012

Treasurer, Toledo Section of American Society for Quality, 2008-2011

Scholarship Committee, Toledo Section of American Society for Quality, Chair 2004
– 2008, 2016, member 2004-present

Faculty Advisor, Toledo Student Section of American Society for Quality, 2003-2008

Vice President, NW Ohio Chapter of American Statistical Association 2002-2007

Associate Editor, Special Issue of *Applied Stochastic Models in Business and Industry*, 2006.

Attended McGraw Hill/Irwin “Business Statistics Symposium” in Las Vegas, NV,
2008

Attended McGraw Hill/Irwin “Innovative Technologies Symposium” in Orlando, FL,
2003

Grant proposal review for 2003 Cooperative Grants Program, U.S. Civilian Research
& Development Foundation, 2003

Member of Planning Committee for Ohio Statistics Day 2002, Bowling Green, OH,
October 25, 2002

Referee for *International Journal of Computing Science and Mathematics*, 2018

Referee for *Technometrics*, 2000, 2007, 2009

Referee for *Communications in Statistics- Simulation and Computation*, 2009, 2018

Referee for *Communications in Statistics- Theory and Methods*, 2008, 2010

Referee for *Computational Statistics and Data Analysis*, 2007, 2008, 2010

Referee for *European Journal of Industrial Engineering*, 2007
Referee for *International Journal of Quality Engineering and Technology*, 2018
Referee for *Journal of Quality Technology*, 2004, 2005, 2007, 2008, 2012
Referee for *Journal of Statistics Education*, 2003 (2), 2011 (2)
Referee for *Journal of Statistical Planning and Inference*, 2002, 2003, 2005
Referee for *Journal of Statistical Computation and Simulation*, 2000, 2004, 2007
Referee for *Quality Engineering*, 2011
Referee for *Quality Technology and Quantitative Management*, 2003, 2006, 2007, 2008
Referee for *Rose-Hulman Undergraduate Mathematics Journal*, 2011
Referee for *Simulation Modelling Practice and Theory*, 2010
Referee for *Statistica Sinica*, 2008
Referee for *The American Statistician*, 1999, 2000, 2001, 2002 (3)

Reviewed *Stat2Labs*, by Kuiper and Collins, (Pearson), 2008
Reviewed *Design and Analysis of Experiments*, 2nd Edition by Dean and Voss, (Springer), 2007
Reviewed *Basic Statistics*, (Oxford Press), 2007
Reviewed *Applied Linear Statistical Models*, 5th Edition by Kutner, Nachtsheim, Neter, and Li, (McGraw-Hill), 2007
Reviewed proposal for *Business Statistics for Management Science*, by Keller for Thompson. (2006)
Reviewed proposal for *Applied Nonparametric Statistical Methods*, 4th Edition by Sprent and Smeeton for Chapman and Hall /CRC. (2005)
Reviewed *Statistical Techniques in Business and Economics* by Lind, et al. (McGraw Hill), 2004
Reviewed *Basic Business Statistics* by Berensen, et al. (Prentice Hall), 2002
Reviewed *ALEKS for Business Statistics*, a web-based tutorial, (McGraw-Hill), 2001
Reviewed *Statistics in Everyday Life* by Bennett, Briggs, and Triola (Addison, Wesley, Longman), 1999

XIII. Research or Professional Consultantships

Principle Business Enterprises, consultant (2019), paid
Expert Statistical Witness, Perrysburg, OH Municipal Court (2002), paid
Expert Statistical Witness, Maumee, OH Municipal Court (2002), paid
Consulting Statistician for Association for the Prevention of Atherothrombotic Disease (APAD), 2000-2001, unpaid

XIV. Membership in Professional Organizations

Member of American Statistical Association (ASA), 2000 - present
Member of Institute of Mathematical Statistics (IMS), 2002-2005
Senior Member of American Society for Quality (ASQ) 2004 - present
Member of Institute of Industrial Engineers (IIE) 9/82 to 4/86

XV. Honors and Awards

A. Membership in Honor Societies

2009 Member of Beta Gamma Sigma (International Honor Society for Collegiate Schools of Business)

1983 Member of Alpha Pi Mu (Industrial Engineering Honor Society)

B. Awards (List award, date, sponsor, etc.)

2012 College of Business Administration Faculty Service Award

2012 ASQ Toledo Section Toulouse Award

2012 ASQ Toledo Section Member Leader Excellence Award

2007 Nominated (with Arthur Yeh) for BGSU President's Award for Collaborative Research and Creative Work

2005 Nominated (with Arthur Yeh) for BGSU President's Award for Collaborative Research and Creative Work

2004 BGSU CBA Robert A. Patton Scholarly Achievement Award

2004 Nominated (with Arthur Yeh) for BGSU President's Award for Collaborative Research and Creative Work

2003 Nominated for BGSU CBA Robert A. Patton Scholarly Achievement Award

2002 Authors and Artists Award, BGSU Friends of the Universities Libraries

1999 Quality and Productivity Research Conference Scholarship.

1994 AT&T Network Services Division Salute Award

1992 AT&T Chairman's Quality Award (CQA) Examiner

1991 Outstanding Contributor to AT&T Technical Education