

Robert L. Winkler

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Education

B.S. – 1963 – University of Illinois – Mathematics

Ph.D. – 1966 – University of Chicago – Graduate School of Business (Statistics, Mathematics, Economics)

Academic Positions

1965-66 – Instructor, Department of Mathematics, University of Illinois Chicago Circle Campus, Chicago, Illinois.

1966-69 – Assistant Professor, Department of Quantitative Business Analysis, Graduate School of Business, Indiana University, Bloomington, Indiana.

1969-72 – Associate Professor, Department of Quantitative Business Analysis, Graduate School of Business, Indiana University, Bloomington, Indiana.

1970-71 – Visiting Associate Professor of Quantitative Methods, Graduate School of Business Administration, University of Washington, Seattle, Washington.

1972-80 – Professor, Department of Quantitative Business Analysis, Graduate School of Business, Indiana University, Bloomington, Indiana.

1972 (summer) – Visiting Scientist, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado.

1973-74 – Research Scientist, International Institute for Applied Systems Analysis, Laxenburg, Austria.

1974 – Visiting Professor, Department of Statistics, Stanford University, Stanford, California.

1979 – Acting Chairman, Department of Quantitative Business Analysis, Graduate School of Business, Indiana University, Bloomington, Indiana.

1980-84 – Distinguished Professor, Department of Quantitative Business Analysis, Graduate School of Business, Indiana University, Bloomington, Indiana.

1980-81 – Visiting Professor, Decision Sciences, INSEAD, Fontainebleau, France.

1984-85 – IBM Research Professor, The Fuqua School of Business, Duke University, Durham, North Carolina.

1985-89 – Calvin Bryce Hoover Professor, The Fuqua School of Business, Duke University, Durham, North Carolina.

1985-90 – Area Coordinator, Quantitative Methods and Operations Management, The Fuqua School of Business, Duke University, Durham, North Carolina.

1988-Present – Professor, Institute of Statistics and Decision Sciences, Duke University, Durham, North Carolina.

1989-Present – Research Professor, Center for Health Policy Research and Education, Duke University, Durham, North Carolina.

1989-Present – James B. Duke Professor, The Fuqua School of Business, Duke University, Durham, North Carolina.

1990-91 – Visiting Professor, Decision Sciences, INSEAD, Fontainebleau, France.

1991-97 – Senior Associate Dean for Faculty and Research, The Fuqua School of Business, Duke University, Durham, North Carolina.

2002 – Visiting Professor, Decision Sciences, INSEAD, Singapore.

2002 – Visiting Professor, Decision Sciences, INSEAD, Fontainebleau, France.

Honors, Awards, and Professional Activities

1. Ramsey Medal for Distinguished Contributions in Decision Analysis, ORSA Special Interest Group on Decision Analysis, 1990.
2. NCNB Faculty Award, The Fuqua School of Business, Duke University, 1989.
3. Decision Analysis Publication Award, Operations Research Society of America, 1992.

4. Honorable Mention, Decision Analysis Publication Award, Decision Analysis Society, 2008,2009
5. Finalist, Decision Analysis Publication Award, Decision Analysis Society, 2007.
6. Fellow, American Statistical Association.
7. Fellow, INFORMS (Institute for Operations Research and the Management Sciences).
8. Distinguished Teaching Award, Global Executive MBA Class of 1997, The Fuqua School of Business, Duke University.
9. Doctoral Teaching Awards, Graduate School of Business, Indiana University, 1970, 1972, 1978, 1980, 1984.
10. Second place (among over 100 faculty), MBA Teacher of the Year, Graduate School of Business, Indiana University, 1972 (one of "Top Five Teachers" in MBA program, 1975 and 1976).
11. Departmental Editor for Decision Analysis, *Management Science*, 1981-89.
12. Associate Editor, *Journal of the American Statistical Association*, 1970-86.
13. Associate Editor, *Journal of Financial and Quantitative Analysis*, 1969-83.
14. Associate Editor, *Decision Sciences*, 1976-84.
15. Associate Editor, *Management Science*, 1979-81, 1999- (Distinguished Service Award, 2009, 2010).
16. Associate Editor, *Operations Research*, 1980-81.
17. Associate Editor, *Journal of Forecasting*, 1981-85.
18. Associate Editor, *International Journal of Forecasting*, 1985-92.
19. Member of Editorial Board, *Organizational Behavior and Human Decision Processes*, 1970-1992.
20. Advisory Editor, *Journal of Risk and Uncertainty*, 1988-.
21. Editorial Board, *Decision Analysis*, 2001-.
22. Advisory Editor, Series in Quantitative Methods for Decision Making, Holt, Rinehart and Winston, 1970-80.
23. Review Panel, Decision, Risk, and Management Science Program, National Science Foundation, 1995-96.
24. Referee for papers submitted to various journals.
25. Reviewer for proposals submitted to National Science Foundation and other funding agencies.
26. Vice President for Publications, Institute of Management Sciences, 1982-85 (Council Member, 1982-84).
27. Director, International Institute of Forecasting, 1985-91 (President, 1989-90).
28. Chair, Decision Analysis Society, 1990-92 (Council Member, 1980-83, 1988-94).
29. Chairman, TIMS/ORSA Combined Publications Committee, 1984-85 (Member, 1982-85).
30. Program Chairman, Spring 1979 TIMS/ORSA Meeting, New Orleans.
31. Program Chairman, The Seventh International Symposium on Forecasting, Boston, 1987.
32. Organizer of numerous sessions and workshops at various national and international meetings.
33. Member, American Statistical Association.
34. Member, Institute of Mathematical Statistics.
35. Member, INFORMS.
36. Member, Decision Analysis Society.
37. Member, International Society for Bayesian Analysis.
38. Member, Judgment/Decision Making Society.
39. Member, Society for Medical Decision Making.
40. Fellow, Decision Sciences Institute (Council Member, 1976-77).
41. Member, Phi Beta Kappa and several other honorary societies.
42. Consultant, Bell Laboratories, Woodward-Clyde Consultants, U.S. Environmental Protection Agency, Geomatrix, Southwest Research Institute, Electric Power Research Institute, various other organizations.

Research and Publications

Articles

1. R.L. Winkler (1967), "The Assessment of Prior Distributions in Bayesian Analysis," *Journal of the American Statistical Association*, **62** (3), 776-800.
2. R.L. Winkler (1967), "The Quantification of Judgment: Some Methodological Suggestions," *Journal of the American Statistical Association*, **62** (4), 1105-1120.
3. R.L. Winkler (1967), "The Quantification of Judgment: Some Experimental Results," *Proceedings of the American Statistical Association*, 386-395.
4. R.L. Winkler and A.H. Murphy (1968), "Evaluation of Subjective Precipitation Probability Forecasts," *Proceedings of the First Conference on Statistical Meteorology*. Boston: American Meteorological Society, 148-157.
5. R.L. Winkler (1968), "The Consensus of Subjective Probability Distributions," *Management Science*, **15** (2),

61-75.

6. R.L. Winkler and A.H. Murphy (1968), "'Good' Probability Assessors," *Journal of Applied Meteorology*, **7** (5), 751-758.
7. R.R. Britney and R.L. Winkler (1968), "Bayesian Point Estimation under Various Loss Functions," *Proceedings of the American Statistical Association*, 356-364.
8. R.L. Winkler (1969), "Scoring Rules and the Evaluation of Probability Assessors," *Journal of the American Statistical Association*, **64** (3), 1073-1078.
9. R.R. Britney and R.L. Winkler (1969), "Some Properties and Applications of Bayesian Point Estimates," *Proceedings of the American Statistical Association*, 425-429.
10. R.L. Winkler (1970), "Intuitive Bayesian Point Estimation," *Organizational Behavior and Human Performance*, **5** (5), 417-429.
11. R.L. Winkler and A.H. Murphy (1970), "Nonlinear Utility and the Probability Score," *Journal of Applied Meteorology*, **9** (1), 143-148.
12. A.H. Murphy and R.L. Winkler (1970), "Scoring Rules in Probability Assessment and Evaluation," *Acta Psychologica*, **34**, 273-286.
13. R.R. Britney and R.L. Winkler (1970), "Tables of nth Order Partial Moments about the Origin for the Standard Normal Distribution, $n = 1(1)6$," *Mathematics of Computation*, **24**, 995.
14. A.H. Murphy and R.L. Winkler (1971), "Forecasters and Probability Forecasts: The Responses to a Questionnaire," *Bulletin of the American Meteorological Society*, **52** (3), 158-165.
15. A.H. Murphy and R.L. Winkler (1971), "Forecasters and Probability Forecasts: Some Current Problems," *Bulletin of the American Meteorological Society*, **52** (4), 239-247.
16. A.H. Murphy and R.L. Winkler (1971), "Nonlinear Utility and the Probability Score: Reply," *Journal of Applied Meteorology*, **10** (2), 336-337.
17. R.L. Winkler and A.H. Murphy (1971), "Probability Forecasting: The Aggregation of Information," *Proceedings of the International Symposium on Probability and Statistics in the Atmospheric Sciences*. Boston: American Meteorological Society, 83-89.
18. R.L. Winkler (1971), "Probabilistic Prediction: Some Experimental Results," *Journal of the American Statistical Association*, **66** (4), 675-685.
19. R.L. Winkler and L.L. Cummings (1972), "On the Choice of a Consensus Distribution in Bayesian Analysis," *Organizational Behavior and Human Performance*, **7** (1), 63-76.
20. R.L. Winkler (1972), "A Decision-Theoretic Approach to Interval Estimation," *Journal of the American Statistical Association*, **67** (1), 187-191.
21. R.L. Winkler (1972), "On Simpson's Paradox and the Sure-Thing Principle, and Some Probability Paradoxes in Choice from Among Random Alternatives: Comment," *Journal of the American Statistical Association*, **67** (2), 376-378.
22. R.L. Winkler, G.M. Roodman, and R.R. Britney (1972), "The Determination of Partial Moments," *Management Science*, **19** (3), 290-296.
23. C.B. Barry and R.L. Winkler (1972), "Portfolio Analysis: A Bayesian Approach," *Proceedings of the American Institute for Decision Sciences*, 443-450.
24. R.L. Winkler (1972), "The Assessment of Probability Distributions for Future Security Prices," in J.L. Bicksler, ed., *Methodology in Finance-Investment*. Lexington Books, D.C. Heath, 129-148.
25. R.L. Winkler (1973), "Bayesian Models for Forecasting Future Security Prices," *Journal of Financial and Quantitative Analysis*, **8**, 387-405.
26. R.L. Winkler and A.H. Murphy (1973), "Information Aggregation in Probabilistic Prediction," *IEEE Transactions on Systems, Man and Cybernetics*, **SMC-3** (2), 154-160.
27. R.L. Winkler and A.H. Murphy (1973), "Experiments in the Laboratory and the Real World," *Organizational Behavior and Human Performance*, **10** (2), 252-270.
28. A.H. Murphy and R.L. Winkler (1973), "Subjective Probability Forecasting of Temperature: Some Experimental Results," *Preprints of the Third Conference on Probability and Statistics in Atmospheric Science*. Boston: American Meteorological Society, 59-64.
29. R.L. Winkler (1973), "'Risk' and Energy Systems: Deterministic versus Probabilistic Models," *Proceedings of Conference on Energy Systems*. Laxenburg, Austria: International Institute for Applied Systems Analysis, 386-400.
30. A.H. Murphy and R.L. Winkler (1973), "Subjective Probability Forecasting in the Real World: Some Experimental Results," *Bulletin of the International Statistical Institute*, **45** (2), 247-268.
31. R.L. Winkler (1973), "Bayesianism: Its Unifying Role for Both the Foundations and the Applications of Statistics: Comments," *Bulletin of the International Statistical Institute*, **45** (4), 375.

32. R.L. Winkler (1974), "Bayesian Regression Methods," in Robert Ferber, ed., *Handbook of Marketing Research*. New York: McGraw-Hill, 2-409 to 2-426.
33. A.H. Murphy and R.L. Winkler (1974), "Credible Interval Temperature Forecasting: Some Experimental Results," *Monthly Weather Review*, **102** (11), 784-794.
34. A.H. Murphy and R.L. Winkler (1974), "Subjective Probability Forecasting Experiments in Meteorology: Some Preliminary Results," *Bulletin of the American Meteorological Society*, **55** (10), 1206-1216.
35. A.H. Murphy and R.L. Winkler (1974), "Probability Forecasts: A Survey of National Weather Service Forecasters," *Bulletin of the American Meteorological Society*, **55** (12), 1449-1453.
36. R.R. Britney and R.L. Winkler (1974), "Bayesian Point Estimation and Prediction," *Annals of the Institute of Statistical Mathematics*, **26** (1), 15-34.
37. R.L. Winkler (1974), "Statistical Analysis: Theory Versus Practice," in C.-A.S. Staël von Holstein, ed., *The Concept of Probability in Psychological Experiments*. Dordrecht, Holland: D. Reidel, 127-140.
38. R.L. Winkler and A.H. Murphy (1974), "On the Generalizability of Experimental Results," in C.-A.S. Staël von Holstein, ed., *The Concept of Probability in Psychological Experiments*. Dordrecht, Holland: D. Reidel, 103-126.
39. A.H. Murphy and R.L. Winkler (1975), "Subjective Probability Forecasting: Some Real-World Experiments," in D. Wendt and C. Vlek, eds., *Utility, Probability, and Human Decision Making*. Dordrecht, Holland: D. Reidel, 177-198.
40. R.L. Winkler and C.B. Barry (1975), "A Bayesian Model for Portfolio Selection and Revision," *Journal of Finance*, **30** (1), 179-192.
41. R.L. Winkler (1975), "A Bayesian Approach to Nonstationary Processes," in M. Pham Huu Tri and J.P. Ponsard, eds., *Theorie de la Decision et Applications*. Paris, France: Foundation Nationale pour l'Enseignement de la Gestion, 1-13.
42. R.L. Winkler (1975), "Cognitive Processes and the Assessment of Subjective Probability Distributions: Comment," *Journal of the American Statistical Association*, **70** (2), 290-291.
43. J. Marschak, K. Borch, H. Chernoff, M.H. DeGroot, R. Dorfman, W. Edwards, T.S. Ferguson, K. Miyasawa, P. Randolph, L.J. Savage, R. Schlaifer, and R.L. Winkler (1975), "Personal Probabilities of Probabilities," *Theory and Decision*, **6**, 121-153.
44. R.L. Winkler (1975), "Varying Parameters: A Bayesian Approach," *Proceedings of the 1975 International Conference on Cybernetics and Society*. New York: The Institute of Electrical and Electronics Engineers, 236-238.
45. A.H. Murphy and R.L. Winkler (1975), "Subjective Probability Forecasting in Meteorology: Some Recent Experimental Results," *Preprints of the Fourth Conference on Probability and Statistics in Atmospheric Sciences*. Boston: American Meteorological Society, 41-48.
46. R.L. Winkler and A.H. Murphy (1976), "Point and Area Precipitation Probability Forecasts: Some Experimental Results," *Monthly Weather Review*, **104** (1), 86-95.
47. J.F. Jaffe and R.L. Winkler (1976), "Optimal Speculation against an Efficient Market," *Journal of Finance*, **31** (1), 49-61.
48. J.E. Matheson and R.L. Winkler (1976), "Scoring Rules for Continuous Probability Distributions," *Management Science*, **22** (10), 1087-1096.
49. C.B. Barry and R.L. Winkler (1976), "Nonstationarity and Portfolio Choice," *Journal of Financial and Quantitative Analysis*, **11** (2), 217-235.
50. R.L. Winkler (1976), "Mathematical Models for Portfolio Analysis," in D.P. Maki and M. Thompson, eds., *Mathematical Models in the Undergraduate Curriculum*. Bloomington, IN: Indiana University, 95-125.
51. R.L. Winkler (1977), "Rewarding Expertise in Probability Assessment," in H. Jungermann and G. de Zeeuw, eds., *Decision Making and Change in Human Affairs*. Dordrecht, Holland: D. Reidel, 127-140.
52. A.H. Murphy and R.L. Winkler (1977), "The Use of Credible Intervals in Temperature Forecasting: Some Experimental Results," in H. Jungermann and G. de Zeeuw, eds., *Decision Making and Change in Human Affairs*. Dordrecht, Holland: D. Reidel, 45-56.
53. A.H. Murphy and R.L. Winkler (1977), "Reliability of Subjective Probability Forecasts of Precipitation and Temperature," *Applied Statistics (Journal of the Royal Statistical Society C)*, **26** (1), 41-47.
54. A.H. Murphy and R.L. Winkler (1977), "Experimental Point and Area Precipitation Probability Forecasts for a Forecast Area with Significant Local Effects," *Atmosphere*, **15** (2), 61-78.
55. A.H. Murphy and R.L. Winkler (1977), "Can Weather Forecasters Formulate Reliable Probability Forecasts of Precipitation and Temperature?," *National Weather Digest*, **2** (2) 2-9.
56. R.L. Winkler (1977), "Prior Distributions and Model-Building in Regression Analysis," in A. Aykac and C. Brumat, eds., *New Developments in the Applications of Bayesian Methods*. Amsterdam: North-Holland,

233-242.

57. A.H. Murphy and R.L. Winkler (1977), "Probabilistic Tornado Forecasts: Some Experimental Results," *Preprints of the Tenth Conference on Severe Local Storms*. Boston: American Meteorological Society, 403-409.
58. R.L. Winkler, A.H. Murphy, and R.W. Katz (1977), "The Consensus of Subjective Probability Forecasts: Are Two, Three, ... Heads Better than One?," *Preprints of the Fifth Conference on Probability and Statistics in Atmospheric Sciences*. Boston: American Meteorological Society, 57-62.
59. R.L. Winkler (1978), "Statisticians Can Matter: Comment," *The American Statistician*, **32** (2), 54-56.
60. R.L. Winkler, W.S. Smith, and R.B. Kulkarni (1978), "Adaptive Forecasting Models Based on Predictive Distributions," *Management Science*, **24** (10), 977-986.
61. J. Eliashberg and R.L. Winkler (1978), "The Role of Attitude toward Risk in Strictly Competitive Decision-Making Situations," *Management Science*, **24** (12), 1231-1241.
62. R.L. Winkler and L.A. Franklin (1979), "Warner's Randomized Response Model: A Bayesian Approach," *Journal of the American Statistical Association*, **74** (1), 207-214.
63. A.H. Murphy and R.L. Winkler (1979), "Probabilistic Temperature Forecasts: The Case for an Operational Program," *Bulletin of the American Meteorological Society*, **60** (1), 12-19.
64. R.L. Winkler (1979), "Statistical Decision Theory and Financial Decision Making," in J.L. Bicksler, ed., *Handbook of Financial Economics*. Amsterdam: North-Holland, 395-413.
65. R.L. Winkler (1979), "On the Reconciliation of Probability Assessments: Comments," *Journal of the Royal Statistical Society A*, **142** (2), 175-176.
66. A.H. Murphy and R.L. Winkler (1979), "Subjective Quantification of Uncertainty in Tornado Forecasts: Some Experimental Results," *Preprints of the Eleventh Conference on Severe Local Storms*. Boston: American Meteorological Society, 628-634.
67. R.L. Winkler and A.H. Murphy (1979), "The Value of Weather Forecasts in the Cost-Loss Ratio Situation: An Ex Ante Approach," *Preprints of the Sixth Conference on Probability and Statistics in Atmospheric Sciences*. Boston: American Meteorological Society, 134-138.
68. R.L. Winkler and A.H. Murphy (1979), "The Use of Probabilities in Forecasts of Maximum and Minimum Temperatures," *Meteorological Magazine*, **108**, 317-329.
69. R.L. Winkler (1980), "Prior Information, Predictive Distributions, and Bayesian Model-Building," in A. Zellner, ed., *Bayesian Analysis in Econometrics and Statistics: Essays in Honor of Harold Jeffreys*. Amsterdam: North-Holland, 95-109.
70. R.L. Winkler and D.G. Brooks (1980), "Competitive Bidding with Dependent Value Estimates," *Operations Research*, **28** (3), 603-613.
71. J.B. Kadane, J.M. Dickey, R.L. Winkler, W.S. Smith, and S.C. Peters (1980), "Interactive Elicitation of Opinion for a Normal Linear Model," *Journal of the American Statistical Association*, **75** (4), 845-854.
72. A.H. Murphy, S. Lichtenstein, B. Fischhoff, and R.L. Winkler (1980), "Misinterpretations of Precipitation Probability Forecasts," *Bulletin of the American Meteorological Society*, **61** (7), 695-701.
73. R.K. Sarin and R.L. Winkler (1980), "Performance-Based Incentive Plans," *Management Science*, **26** (11), 1131-1144.
74. R.L. Winkler (1980), "Forecasting from a Bayesian Viewpoint," *Proceedings of the WMO Symposium on Probabilistic and Statistical Methods in Weather Forecasting*. Geneva: World Meteorological Organization, 135-142.
75. R.L. Winkler, A.H. Murphy, and R.W. Katz (1980), "Assessing the Value of Climate Information," in L.S. Pocinki, R.S. Greeley, and L. Slater, eds., *Climate and Risk*. McLean, Virginia: The MITRE Corporation, 3-1 to 3-28.
76. R.L. Winkler (1981), "Combining Probability Distributions from Dependent Information Sources," *Management Science*, **27** (4), 479-488.
77. J. Eliashberg and R.L. Winkler (1981), "Risk Sharing and Group Decision Making," *Management Science*, **27** (11), 1221-1235.
78. A.H. Murphy, S. Lichtenstein, B. Fischhoff, and R.L. Winkler (1981), "Misinterpretations of Precipitation Probability Forecasts: Response," *Bulletin of the American Meteorological Society*, **62** (3), 428-429.
79. R.L. Winkler and R.K. Sarin (1981), "A Risk Assessment Methodology for Environmental Pollutants," in T. McCurdy and H. Richmond, eds., *Conceptual Approaches to Health Risk Assessment for Alternative National Ambient Air Quality Standards*. Research Triangle Park, North Carolina: U.S. Environmental Protection Agency.
80. R.W. Katz, A.H. Murphy, and R.L. Winkler (1981), "Markov Decision Processes and the Value of Meteorological Information," *Preprints of the Seventh Conference on Probability and Statistics in Atmospheric*

- Sciences*. Boston: American Meteorological Society, 125-128.
81. R.M. Conroy and R.L. Winkler (1981), "Informational Differences between Limit and Market Orders for a Market Maker," *Journal of Financial and Quantitative Analysis*, **16** (5), 703-724.
 82. R.L. Winkler and R.K. Sarin (1981), "Risk Assessment: Consulting the Experts," *The Environmental Professional*, **3**, 265-276.
 83. G. Harpaz, W. Y. Lee, and R.L. Winkler (1982), "Learning, Experimentation, and the Optimal Output Decision of a Competitive Firm," *Management Science*, **28** (6), 589-603.
 84. R.L. Winkler (1982), "The Bayesian Approach: A General Review," in G. Keren, ed., *Statistical and Methodological Issues in Psychology and Social Sciences Research*. Hillsdale, New Jersey: Lawrence Erlbaum, 217-244.
 85. S. Makridakis, A. Andersen, R. Carbone, R. Fildes, M. Hibon, R. Lewandowski, J. Newton, E. Parzen, and R.L. Winkler (1982), "The Accuracy of Extrapolation (Time Series) Methods: Results of a Forecasting Competition," *Journal of Forecasting*, **1**, 111-153.
 86. R.W. Katz, A.H. Murphy, and R.L. Winkler (1982), "Assessing the Value of Frost Forecasts to Orchardists: A Dynamic Decision-Making Approach," *Journal of Applied Meteorology*, **21** (4), 518-531.
 87. R.L. Winkler (1982), "Information and Modeling in Risk Assessment," in H. Kunreuther, ed., *Risk: A Seminar Series*. Laxenburg, Austria: International Institute for Applied Systems Analysis, 351-359.
 88. A.H. Murphy, W. Hsu, and R.L. Winkler (1982), "Subjective Probabilistic Quantitative Precipitation Forecasts: Some Experimental Results," *Preprints of the Ninth Conference on Weather Forecasting and Analysis*. Boston: American Meteorological Society, 94-100.
 89. A.H. Murphy and R.L. Winkler (1982), "Subjective Probabilistic Tornado Forecasts: Some Experimental Results," *Monthly Weather Review*, **110** (9), 1288-1197.
 90. R.L. Winkler (1982), "Research Directions in Decision Making under Uncertainty," *Decision Sciences*, **13** (4), 517-533.
 91. A.H. Murphy, S. Lichtenstein, B. Fischhoff, and R.L. Winkler (1983), "Interpretation of Probability Forecasts: Response," *Bulletin of the American Meteorological Society*, **63**, 326.
 92. R.L. Winkler (1983), "Judgments under Uncertainty," in S. Kotz and N.L. Johnson, eds., *Encyclopedia of Statistical Sciences*, **4**. New York: Wiley, 332-33.
 93. R.L. Winkler, A.H. Murphy, and R.W. Katz (1983), "The Value of Climate Information: A Decision-Analytic Approach," *Journal of Climatology*, **3**, 187-197.
 94. R.L. Keeney, L.R. Keller, R.K. Sarin, A. Sicherman, and R.L. Winkler (1983), "Development and Application of a Risk Assessment Methodology to Study Alternative National Ambient Carbon Monoxide Standards," Research Triangle Park, N.C., U.S. Environmental Protection Agency.
 95. R.L. Winkler and S. Makridakis (1983), "The Combination of Forecasts," *Journal of the Royal Statistical Society A*, **146** (2), 150-157.
 96. R.L. Winkler (1983), "The Effects of Combining Forecasts and the Improvement of the Overall Forecasting Process," *Journal of Forecasting*, **2**, 293-294.
 97. R.L. Keeney, R.K. Sarin, and R.L. Winkler (1983), "A Risk Assessment Model for the Study of Alternative National Ambient Carbon Monoxide Standards," *Proceedings of the Air Pollution Control Association*. Atlanta: Air Pollution Control Association.
 98. D.A. Goss and R.L. Winkler (1983), "Progression of Myopia in Youth: Age of Cessation," *American Journal of Optometry and Physiological Optics*, **60** (8), 651-658.
 99. S. Makridakis and R.L. Winkler (1983), "Averages of Forecasts: Some Empirical Results," *Management Science*, **29** (9), 987-996.
 100. A.H. Murphy, R.L. Winkler, and R.W. Katz (1983), "Use of Decision Analysis to Assess the Actual and Potential Value of Short-Range Climate Forecasts," *Proceedings of the Second International Meeting on Statistical Climatology*, 9.4.1-9.4.6.
 101. R.L. Keeney, R.K. Sarin, and R.L. Winkler (1984), "Analysis of Alternative National Ambient Carbon Monoxide Standards," *Management Science*, **30** (4), 518-528.
 102. A.H. Murphy and R.L. Winkler (1984), "Probability Forecasting in Meteorology," *Journal of the American Statistical Association*, **79** (3), 489-500.
 103. R.L. Winkler (1985), "Bayesian Inference," in A.H. Murphy and R.W. Katz, eds., *Probability, Statistics, and Decision Making in the Atmospheric Sciences*. Boulder, Colorado: Westview Press, 461-491.
 104. R.L. Winkler and A.H. Murphy (1985), "Decision Analysis," in A.H. Murphy and R.W. Katz, eds., *Probability, Statistics, and Decision Making in the Atmospheric Sciences*. Boulder, Colorado: Westview Press, 493-524.
 105. R.L. Winkler (1985), "Information Loss in Noisy and Dependent Processes," in J.M. Bernardo, M.H. DeGroot,

- D.V. Lindley, and A.F.M. Smith, eds., *Bayesian Statistics 2*. Amsterdam: North-Holland, 559-570.
106. R.L. Winkler (1985), "Probability Forecasting, Stochastic Dominance, and the Lorenz Curve: Comment," in J.M. Bernardo, M.H. DeGroot, D.V. Lindley, and A.F.M. Smith, eds., *Bayesian Statistics 2*. Amsterdam: North-Holland, 112-113.
 107. R.L. Winkler (1985), "Multivariate Group Assessment of Probabilities of Nuclear War: Comment," in J.M. Bernardo, et al, eds., *Bayesian Statistics 2*. Amsterdam: North-Holland, 458-459.
 108. R.T. Clemen and R.L. Winkler (1985), "Limits for the Precision and Value of Information from Dependent Sources," *Operations Research*, **33** (2), 427-442.
 109. R.L. Winkler (1985), "Bayesian Model Building and Forecasting," *Journal of the American Statistical Association*, **80** (1), 95.
 110. A.H. Murphy, R.W. Katz, R.L. Winkler, and W. Hsu (1985), "Repetitive Decision Making and the Value of Forecasts in the Cost-Loss Ratio Situation: A Dynamic Model," *Monthly Weather Review*, **113** (5), 801-813.
 111. R.L. Winkler (1985), "Measuring Skill and Utility of Probability Forecasts," *Proceedings of the Ninth Conference on Probability and Statistics in Atmospheric Sciences*. Boston: American Meteorological Society, 180-186.
 112. R.L. Keeney and R.L. Winkler (1985), "Evaluating Decision Strategies for Equity of Public Risks," *Operations Research*, **33** (5), 955-970.
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2. R.L. Winkler, two chapters in D.L. Harnett (1970), *Statistical Methods*. Reading, MA: Addison-Wesley. 2nd edition, 1975. 3rd edition, 1982.
3. W.L. Hays and R.L. Winkler (1971), *Statistics: Probability, Inference and Decision*, combined edition. New York: Holt, Rinehart and Winston.
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8. S. Makridakis, R.L. Winkler, and M. Deplas (1988), *PSI: Programmes de Statistique Interactifs*. Paris: Les Éditions d'Organisation.
9. R.L. Winkler (2003), *An Introduction to Bayesian Inference and Decision*, 2nd edition. Gainesville, FL: Probabilistic Press.

Software

1. ISP (Interactive Statistical Programs), 1985 (with Spyros Makridakis), distributed by Lincoln Systems Corporation.

Book Reviews

1. Review of Peters and Summers, *Statistical Analysis for Business Decisions*, in *Journal of Business*, **41** (1968), 516-517.
2. Review of Morgan, *An Introduction to Bayesian Statistical Decision Processes*, in *Journal of Business*, **42** (1969), 120-122.
3. Review of Dyckman, Smidt, and McAdams, *Management Decision Making Under Uncertainty*, in *Journal of Business*, **44** (1971), 232-233.
4. Review of Hamburg, *Statistical Analysis for Decision Making*, in *Technometrics*, **13** (1971), 705-706.
5. Review of Clelland, de Cani, and Brown, *Basic Statistics with Business Applications*, 2nd Ed., in *Journal of the American Statistical Association*, **70** (1975), 965.
6. Review of Bierman, Bonini, and Hausman, *Quantitative Analysis for Business Decisions*, 4th Ed., in *Journal of the American Statistical Association*, **70** (1975), 965.
7. Review of Cochran and Zeleny (eds.), *Multiple Criteria Decision Making*, in *Journal of the American Statistical Association*, **70** (1975), 965-966.
8. Review of Lindley, *Making Decisions*, in *Journal of the American Statistical Association*, **71** (1976), 527-528.
9. Review of Tummala and Henshaw (eds.), *Concepts and Applications of Modern Decision Models*, in *Journal of the American Statistical Association*, **72** (1977), 482.
10. Review of Aitchison and Dunsmore, *Statistical Prediction Analysis*, in *Journal of the American Statistical Association*, **73** (1978), 222-223.
11. Review of White, *Fundamentals of Decision Theory*, in *Journal of the American Statistical Association*, **73** (1978), 894.
12. Review of Gottinger and Leinfellner, *Decision Theory and Social Ethics*, in *Journal of the American Statistical Association*, **74** (1979), 922-923.
13. Review of Ahlers, *A New Look at Portfolio Management*, in *Interfaces*, **9** (1979), 151-152.
14. Review of Jones, *Introduction to Decision Theory*, and Kwon, *Statistical Decision Theory with Business and Economic Applications*, in *Journal of the American Statistical Association*, **75** (1980), 251-252.
15. Review of Hogarth, *Judgement and Choice: The Psychology of Decision*, in *Journal of the American Statistical Association*, **78** (1983), 497.
16. Review of Buchanan, *Discrete and Dynamic Decision Analysis*, in *Journal of the American Statistical Association*, **79** (1984), 963.
17. Review of Zeleny, *Multiple Criteria Decision Making*, in *Journal of the American Statistical Association*, **79** (1984), 963.

Research Grants and Fellowships (Principal Investigator or Co-Principal Investigator)

1. Grant for \$50,000 from the National Science Foundation for research on subjective probability, 1969-1971.
2. Grant for \$30,000 from the National Science Foundation for research on probabilistic prediction, 1971-1973.
3. Grant for \$30,000 from the National Science Foundation for research on decision-making problems, 1974-1976.
4. Grant for \$35,000 from the National Science Foundation for research on probability forecasting and decision making, 1976-1978.
5. Grant for \$52,000 from the National Science Foundation for research on probability forecasting and the value of

- weather forecasting, 1978-1980.
6. Grant for \$180,000 from the National Science Foundation for research on dynamic decision models for assessing the value of weather and climate information, 1980-1982.
 7. Grant for \$47,000 from the National Science Foundation for Research on information aggregation and value, 1981-1983.
 8. Grant for \$200,000 from the National Science Foundation for research on the use of decision-making models to describe quality/value relationships for weather and climate information, 1982-1984.
 9. Grant for \$200,000 from the National Science Foundation for research on the use of static and dynamic decision-making models to describe quality/value relationships for weather and climate information, 1985-1987.
 10. Grant for \$268,000 from the National Science Foundation for research on combining dependent information, 1986-1989.
 11. Grant for \$300,000 from the National Science Foundation for research on the optimal use and economic value of weather and climate information, 1987-1990.
 12. Grant for \$120,000 from the National Science Foundation for research on the foundations of risk analysis, 1988-1990.
 13. Grant for \$82,000 from the National Science Foundation for research on the foundations of risk analysis, 1990-92.
 14. Grant for \$125,000 from the National Science Foundation for research on flexible modeling and analysis for information aggregation, 1991-1994.
 15. Grant for \$278,000 from the National Science Foundation for research on a Bayesian system for prediction of severe weather, 1991-1994.
 16. Grant for \$48,000 from the National Science Foundation for research on dependence assessment, 1994-95.
 17. Grant for \$122,000 from the National Science Foundation for research on dependence assessment, 1995-98.
 18. Grant for \$113,000 from the National Science Foundation for research on evaluation of probability forecasts, 1999-2002.
 19. Indiana University Summer Faculty Fellowships, 1967, 1968, 1971.
 20. Ford Foundation Fellowships, 1964-1966.

Teaching

New courses developed (Indiana University)

1. K503/K504-Basic statistics course for MBA's which evolved into a two-course sequence including probability theory, statistical inference, statistical decision theory, forecasting, and linear programming.
2. K503*-An advanced version of K503, intended for quantitative majors, doctoral students, and others with good mathematical backgrounds.
3. K620-A Ph.D. course in Bayesian statistics and decision theory.
4. K798-Research seminar in Bayesian statistics and decision theory. A sequel to K620, with the content of the course depending on the interests of the students.
5. V505-An applied decision analysis course for the School of Public and Environmental Affairs. Covers the basic elements of decision analysis and involves intensive work on actual decision-making problems in the public sector.
6. K515-An applied decision analysis course similar to V505 but intended for MBA students.
7. K320-A decision analysis course for undergraduate quantitative majors.

New Courses developed (University of Washington)

1. Seminar on statistical decision theory with emphasis on applications.

New Courses developed (INSEAD)

1. Ph.D. Seminar on Bayesian Inference.
2. Ph.D. Seminar on Decision Models.

New Courses developed (Duke University)

1. BA510 - A Ph.D. course in Bayesian inference and decision.

2. BA410 - A decision analysis elective covering various aspects of decision and risk analysis for MBA students.
3. G311 - GEMBA Statistical Models - A statistics course designed for Fuqua's Global Executive MBA program, including a two-week residential segment and an interactive distance-learning segment.
4. C311 – CCMBA Statistical Models – A statistics course designed for Fuqua’s Cross-Continent MBA program, including a one-week residential segment and an interactive distance-learning segment.

Dissertation Advising

Chairman for 24 doctoral dissertations, member of dissertation committee for several others.