Douglas R. Shier

Professor of Mathematical Sciences. Clemson University

DEGREES

Ph.D.	Operations Research	London School of Economics	1973
A.B.	Applied Mathematics and Economics	Harvard University	1968

OTHER RELATED EXPERIENCE

Professor	Dept. of Mathematical Sciences Clemson University	1992 – present
Professor	Dept. of Mathematics College of William and Mary	1988 –1991
Professor	Dept. of Mathematical Sciences Clemson University	1982 –1987
Associate Professor	Dept. of Mathematical Sciences Clemson University	1981 – 1982
Mathematician	Applied Mathematics Division National Bureau of Standards	1975 –1980
Assistant Professor	Dept. of Quantitative Methods University of Illinois, Chicago Circle	1974 –1975
Statistician	Center for Disease Control	1968 –1970

CONSULTING

American Mathematical Society; AT&T Communications; DISTINCT Management Consultants; ProfitLogic, Inc.; Lockheed-Martin.

GRANTS

Principal Investigator, "Optimal Allocation Problems," ProfitLogic, Inc. (2002).

Principal Investigator, "Research into Mathematical Modeling," ProfitLogic, Inc. (2001).

Co-Principal Investigator, "Multi-Platform Software for Graphical Display and Solution of Network Models," Educational Technology mini-grant, Clemson University (1996).

Co-Principal Investigator, "Development of a Hierarchical Matching Model for the AMS Employment Register," American Mathematical Society (1992).

Investigator, "University Research Initiative Program in Discrete Mathematics and Computational Analysis," Office of Naval Research (1986-1991).

Investigator, "Funds for Excellence Proposal in Mathematics," Charles Center, College of William and Mary (1991).

Principal Investigator, "Topics in Applicable Mathematics: A Course Using *Mathematica*," Wolfram Research, Inc. (1991).

Investigator, "Activity in Matrix Theory and Discrete Mathematics," National Security Agency (1990-1992).

Principal Investigator, "An Algebraic Approach to Network Reliability Problems," Air Force Office of Scientific Research (1984-1990).

Investigator, "Research Experiences for Undergraduates," National Science Foundation (1990).

PUBLICATIONS

Has published approximately 120 papers in refereed journals and conference proceedings as well as authored (or co-authored) three books: *Network Reliability and Algebraic Structures*; *Applied Mathematical Modeling* (with K. T. Wallenius); *Handbook of Discrete and Combinatorial Mathematics* (with K. Rosen, J. Michaels, J. Gross, J. Grossman). See most recent publications below.

SCIENTIFIC AND PROFESSIONAL MEMBERSHIPS

Mathematical Association of America
Institute for Operations Research and Management Science

PROFESSIONAL SERVICE

SIAM Visiting Lecturer, 1982–1983.
ORSA/INFORMS Visiting Lecturer, 1990–1997.
INFORMS Speakers Program, 2003-present.
Office of Naval Research Board of Visitors, 1990, 1993.
External Reviewer, Mathematical Sciences Dept., UNC Wilmington, 1993.
Associate Editor, *Operations Research*, 1982–1989.
Associate Editor, *Operations Research Letters*, 1989–1996.
Associate Editor, *INFORMS Journal on Computing*, 1992–1999.
Editor-in-Chief, *Networks*, 1999–present.
Associate Editor, *Management Science*, 2003–2008.

RECENT PUBLICATIONS

1. "Spanning trees: let me count the ways," Mathematics Magazine **73** (2000), 376-381.

2. "Graph theory," in *Encyclopedia of Operations Research and Management Science*, 2nd Edition, Kluwer Academic Publishers, 2001, pp. 339-342.

3. "Discrete mathematics and combinatorics," *Encyclopedia of Physical Science and Technology, Volume 4*, 3rd edition, Academic Press, 2001, pp. 523-534.

4. "Cancellation in cyclic consecutive sets," *J. Computational and Applied Mathematics* **142** (2002), 13-26. With N. Calkin and J. Edds.

5.   "Minimax models for diverse routing," *INFORMS Journal on Computing* **14** (2002), 81-95. With J. Brumbaugh-Smith.

6.   "A lattice-based approach to matched pairs tests," *Congressus Numerantium* **155** (2003),
     5-13.

7.   "Algorithms for the weight distribution of a minimum spanning tree in a stochastic network," Proceedings of the INOC 2003 Conference, Paris, France, October 17-29, 2003, pp. 279-285. With K. R. Hutson.

8.   "Matchings and assignments," in *Handbook of Graph Theory*, J. Gross and J. Yellen (eds.), CRC Press, 2004, pp. 1103-1116.

9.   "Research and statistics," in *Hand Rehabilitation: A Quick Reference Guide and Review*, S. Weiss and N. Falkenstein (eds.), second edition, Elsevier, 2005, pp. 427-433.

10. "A heuristic method to solve the size assortment problem," *The Next Wave in Computing, Optimization, and Decision Technologies*, B. Golden et al. (eds.), Kluwer, 2005, pp. 121-132. With K. W. Flowers and B. A. Novick.

11. "Bounding distributions for the weight of a minimum spanning tree in stochastic networks," *Operations Research* **53** (2005), 879-886. With K. R. Hutson.

12. "On distributed shortest path algorithms," *Proceedings of the INOC 2005 Conference*, Lisbon, March 2005, pp. 449-454. With T. Buchanan and K. Hutson.

13. "Minimum spanning tree in networks with varying edge weights," *Annals of Operations Research* **146** (2006), 3-18. With K. R. Hutson.

14. "Network modelling," in *Handbook on Modelling for Discrete Optimization*, Springer, 2006, pp. 129-149.

15. "Optimization models for scheduling of jobs," *NIST Journal of Research* **111** (2006), 103-111. With S. Indika.

16. "Label-correcting shortest path algorithms revisited," *Perspectives in Operations Research*, F. Alt et al. (eds.), Springer, 2006, pp. 179-197. With M. G. Bardossy.

17. "Cut scheduling in the apparel industry," *Computers and Operations Research* **34** (2007), 3209-3228. With D. M. Rose.

18. "On the distributed Bellman-Ford algorithm and the looping problem," *INFORMS J. Computing* **19** (2007), 542-551. With K. R. Hutson and T. L. Schlosser.

19. "An efficient enumeration algorithm for the two-sample randomization distribution," *Extending the Horizons: Advances in Computing, Optimization, and Decision Technologies*, E. K. Baker et al. (eds), Springer, 2007, pp. 61-75. With J.P. Jarvis and M. Coffin.

20. "Computational issues in network reliability," *Encyclopedia of Statistics in Quality and Reliability*, Wiley, 2008. With C. J. Colbourn.

21. "Extended domination for a stochastic shortest path problem," *Computers and Operations Research* **36** (2009), 584-596. With K. R. Hutson.

22. "Generating random test networks for shortest path algorithms," *Operations Research and Cyber-Infrastructure*, J. Chinneck et al. (eds.), Springer, 2009, pp. 295-308. With D. Adams-Smith