July 1, 2009

CURRICULUM VITAE

Name George S. Fishman

Address 641 Wellington Court
Chapel Hill, North Carolina 27514
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Current Position Professor Emeritus, Department of Operations Research
University of North Carolina at Chapel Hill, July 1, 2001+

Previous Positions Professor, Department of Statistics and Operations Research
University of North Carolina at Chapel Hill, July 1, 1974-June 30, 2001
Chairman, Department of Operations Research, University of
North Carolina at Chapel Hill, January 1, 1981-June 30, 1990

Associate Professor, Department of Administrative Sciences and
Institute for Social and Policy Studies, Yale University, 1970-74

Associate Director, Health Services Research Training Program,
Yale University, 1970-72

Research Analyst, The Rand Corporation, 1962-70

Lecturer, Graduate School of Business Administration (statistics),
University of California at Los Angeles, 1964-65

Education B.S. in Economics, M.I.T., 1960
M.A. in Economics, Stanford University, 1963
Ph.D. in Biostatistics, University of California at Los Angeles,
1970

Professional Societies Institute of Operations Research and Management Science
(INFORMS)

Current Research The effect of long-term dependence on discrete-event simulation.
Counting the number of rectangular arrays with fixed row and column sums.

Honors

2009 Festschrift in Honor of George Samuel Fishman, *Advancing the Frontiers of Simulation*, Christos Alexopoulos, David Goldsman, and James R. Wilson eds., Springer Verlag.

2004 INFORMS College of Simulation Lifetime Achievement Award.

2003 Elected a Fellow of INFORMS.

1997 Prizes for G.S. Fishman (1996). Monte Carlo: Concepts, Algorithms, and Applications, Springer-Verlag, New York.

Lanchester Prize, Institute for Operations Research and the Management Sciences (INFORMS), awarded for the 1996 outstanding publication in Operations Research and the Management Sciences in English.

INFORMS College on Simulation award for 1997 Outstanding Publication in Simulation.

1990 Distinguished Service Award, Institute of Management Science, College on Simulation.

1990 Kenan Faculty Leave from UNC-CH; taken at Institute of Statistics and Decision Sciences, Duke University.

1979 Kenan Faculty Leave from UNC-CH; taken at UNC-CH.

University Activities

UNC-CH Faculty Council, Fall 1998-2001

Chair, Conference of Chairpersons, College of Arts and Sciences, UNC-CH, 1989-90

Member, Administrative Board of the Graduate School, UNC-CH, Fall 1988

Member, UNC-CH Self-Study Subcommittee charged with writing research mission statement for University 1984

Contracts and Grants

1. "Capacity Expansion and Facilities Location Analysis," Hoechst Celanese Corporation, 1996-1997

2. "Computational Methods in Analysis of Enumeration and Counting Problems with Applications to Manufacturing," NSF grant, 1990-1993

3. "Evaluating Routing and Flow Control Algorithms for Telecommunication Networks," IBM, 1989-1991

4. "Monte Carlo Methods for the Evaluation of System Reliability," Air Force Office of Scientific Research, 1984-1989

5. "Developing Harvesting Policies for North Carolina Shrimp," Sea Grant Program, National Oceanographic and Atmospheric Administration, 1978-1980

6. "Statistical Analysis Techniques for Simulation Output," Office of Naval Research, 1973-1984

Professional Activities

Program Committee, Third IMAC Seminar on Monte Carlo Methods, Salzburg University Austria, September 10-14, 2001

Program Committee, Fourth International Conference on Monte Carlo and Quasi-Monte Carlo methods, Hong Kong, November 27-December 1, 2000

Distinguished Service Award Committee, TIMS College on Simulation, 1991

Reviewer, NSF initiation grants in design and manufacturing systems

Lanchester Prize Committee, Operations Research Society of America, 1991

Editorial Advisory Board, *ACM Transactions on Modeling and Computer Simulation*, 1989 - 1992

Departmental editor in simulation for *Management Science*, June 1978 - December 1987

Lanchester Prize Committee, Operations Research Society of American, 1978 and 1987

Chairman, TIMS College on Simulation and Gaming, 1972-74

Professor Fishman has served as a consultant to the Robert Wood Johnson Foundation, the Rand Corporation, the Ford Foundation, the U.S. Government and to a variety of private enterprises in diverse fields. He has also participated in many professional activities both as an invited speaker and as a session chairman. His refereeing activities include *Communications of the ACM, JASA, Operations Research, Management Science and SIAM Journal on Scientific and Statistical Computation.*

PUBLICATIONS

BOOKS

1. *Spectral Methods in Econometrics*, Harvard University Press, 1969.
2. *Concepts and Methods in Discrete Event Digital Simulation*, John Wiley and Sons, 1973, in English, Polish and Spanish.
3. *Principles of Discrete Event Simulation*, John Wiley and Sons, 1978.
4. *Monte Carlo: Theory, Algorithms and Applications*, Springer-Verlag, 1996.
5. *Discrete-Event Simulation: Modeling, Programming, and Analysis*, Springer-Verlag, June 2001.
6. *A First Course in Monte Carlo*, Duxbury Press, 2005.

JOURNAL ARTICLES

Economics

1. Price behavior under alternative forms of price expectations, *Quart. J. Economics*, **78**, 1964, 281-298.

Statistical Analysis of Discrete Event Simulation Output

1. Problems in the statistical analysis of simulation experiments: the comparison of means and the length of sample records, *Comm. ACM*, **10**, 1967, 94-99.
2. Spectral analysis of time series generated by simulation models, with Philip J. Kiviat, *Man. Sci.*, **13**, 1967, 525-557.
3. The statistics of discrete-event simulation, with Philip J. Kiviat, *Simul.*, **10**, 1968, 195-196.
4. Estimating sample size in computer simulation experiments, *Man. Sci.*, **18**, 1971, 21-38.
5. A study of bias considerations in simulation experiments, *Oper. Res.*, **20**, 1972, 785-790.
6. Output analysis of queueing simulations, *Man. Sci.*, **20**, 1973, 363-369.
7. Estimation in multiserver queueing simulations, *Oper. Res.*, **22**, 1974, 72-78.
8. How to make simulations more effective, Environmental Modeling and Simulation, Office of Research and Development and Office of Planning and Management, U.S. Environmental Protection Agency, 1976, 664-667.
9. Statistical analysis of multiserver queueing simulations, *Oper. Res. Quart.*, **27**, 1976, 1005-1014.
10. Achieving specified accuracy in simulation output analysis, *Comm. ACM*, **20**, 1977, 310-314.
11. Grouping observations in digital simulation, *Man. Sci.*, **24**, 1978, 510-52
12. Estimating the mean of a correlated binary sequence with an application to discrete event simulation, with Louis R. Moore, *J. ACM*, **26**, 1979, 82-94.
13. Starting and stopping rules for simulation using a priori information, with V.G. Adlakha, *European J. Oper. Res.*, **10**, 1982, 379-394.
14. Computational experience with the batch means method, *Proceedings of the 1997 Winter Simulation Conference*, C. Alexopoulos and A. Seila, co-authors, Atlanta, Georgia, IEEE, Piscataway, NJ.

Statistics

1. Estimation of the mean of a wide-sense stationary autoregressive sequence, *J. Amer. Statist. Assoc.*, **67**, 1972, 402-406.
2. Confidence intervals for the mean in the bounded case, *Statist. & Prob. Letters*, **14**, No. 5, 1991, 223-227.
3. An implementation of the batch means method, with L.S. Yarberry, *INFORMS Journal on Computing*, **9**, 1997, 296-310.

4. LABATCH.2: Software for statistical analysis of simulation sample path data, *Proceedings of the 1998 Winter Simulation Conference*, D.J. Medeiros, E.F. Watson, J.S. Carson, and M.S. Manivannan, eds, pp. 131-139.

5. Best- and worst-case variances when bounds are available for the distribution function, with D.S. Rubin, *Computational Statistics and Data Analysis*, 1998, **29**, 35-54.

Variance Reduction in Monte Carlo and Simulation Experiments

1. The allocation of computer time in comparing simulation experiments, *Oper. Res.*, **16**, 1968, 280-295.

2. Variance reduction in simulation studies, *J. Statist. Comput. Simul.*, **1**, 1972, 173-182.

3. Variance reduction for normal variates in Monte Carlo studies, *J. Statist. Comput. Simul.*, **2**, 1973, 365-374.

4. Correlated simulation experiments, *Simulat.*, **23**, 1974, 177-180.

5. Variance reduction for population growth simulation models, *Oper. Res.*, **27**, 1979, 997-1010.

6. Accelerated accuracy in the simulation of Markov chains, *Oper. Res.*, **31**, 1983, 466-487.

7. Accelerated convergence in the simulation of countably infinite state Markov chains, *Oper. Res.*, **31**, 1983, 1074-1089.

8. Antithetic variates revisited, with B.D. Huang, *Comm. ACM*, **26**, 1983, 964-971.

9. Monte Carlo estimation of the maximal flow distribution with discrete stochastic arc capacity levels, *Naval Res. Logist. Quart.*, **36**, 1989, 829-849.

10. Sensitivity analysis using the Monte Carlo acceptance-rejection method, *SIAM J. Sci. Stat. Comput.*, **11**, 1990, 1164-1180.

11. An analysis of Swendsen-Wang and related sampling methods, *J. Roy. Statist. Soc.*, series B, **61**, 623-641.

Distribution Sampling on a Computer

1. Sampling from the Gamma distribution on a computer, *Comm. ACM*, **19**, 1976, 407-409.

2. Sampling from the Poisson distribution on a computer, *Computing*, **27**, 1976, 147-156.

3. A procedure for generating time dependent arrivals for queueing simulations, with E.P.C. Kao, *Naval Res. Logist. Quart.*, **24**, 1977, 661-666.

4. Sampling from the binomial distribution on a computer, *J. Amer. Statist. Assoc.*, **74**, 1979, 418-423.

5. Sampling from a discrete distribution while preserving monotonicity, with L.R. Moore, *The Amer. Statist.*, **38**, 1984, 219-223.

6. Generating a sample from a k-cell table with changing probabilities in $O(\log_2 k)$ time, with L.S. Yarberry, *ACM Trans. Math. Software*, **19**, 1993, 257-261.

Pseudorandom Number Generation

1. Some test results on the SIMSCRIPT II.5 and SIMPL/1 pseudorandom number generators, *Simuletter*, **8**, 1976, 79-84.

2. A statistical evaluation of multiplicative congruential random number generators with modulus $2^{31} - 1$, with L.R. Moore, *J. Amer. Statist. Assoc.*, **77**, 1982, 129-136.

3. An exhaustive analysis of multiplicative congruential random number generators with modulus $2^{31} - 1$, with L.R. Moore, *SIAM J. Sci. Stat. Comput.*, **7**, 1986, 24-45.

4. Multiplicative congruential random number generators with modulus 2^{β} : An exhaustive analysis for $\beta = 32$ and a partial analysis for $\beta = 48$, *Math. of Comput.*, **54,** No. 189, 1990, 331-344.

Monte Carlo Methods in Stochastic Networks

1. Estimating critical path and arc probabilities in stochastic activity networks, *Naval Res. Logist. Quart.*, **32**, 1985, 249-261.

2. Estimating network characteristics in stochastic activity networks, *Man. Sci.*, **31**, 1985, 579-593.

3. A Monte Carlo sampling plan for estimating network reliability, *Oper. Res.*, **34**, 1986, 581-594.

4. A comparison of four Monte Carlo methods for estimating the probability of *st* connectedness, *IEEE Trans. on Rel.*, **35**, 1986, 145-154.

5. A Monte Carlo sampling plan for estimating reliability parameters and related functions, *Networks*, **17**, 1987, 169-186.

6. Maximum flow and critical cutset as descriptors of multi-state systems with randomly capacitated components, *Comput. and Oper. Res.*, **14**, 1987, 507-520.

7. The distribution of maximum flow with applications to multi-state rliability systems, *Oper. Res.*, **35**, 1987, 607-618.

8. Systems Reliability: Estimation, Sensitivity and Parameter Errors, *Computer Performance and Reliability*, G. Iazeolla, P. J. Courtois and O. J. Boxma, eds., Elsevier Science Publishers B.V. (North-Holland), 1988, 245-258.

9. Estimating the *s-t* reliability function using importance and stratified sampling, *Oper. Res.*, **37**, 1989, 462-473.

10. Monte Carlo, control variates and stochastic ordering, *SIAM J. Sci. Stat. Comput.*, **10**, 1989, 187-204.

11. Evaluating reliability of stochastic flow network, with Tien-yi Shaw, *Prob. in the Eng. and Inf. Sci.*, **3**, 1989, 493-509.

12. How errors in component reliability affect system reliability, *Oper. Res.*, **38**, 1990, 728-732.

13. Sensitivity analysis for the system reliability function, *Prob. in the Eng. and Infor. Sci.*, **5**, 1991, 185-213.

14. Characterizing stochastic flow networks using the Monte Carlo method, with C. Alexopoulos, *Networks*, **21**, 1991, 775-798.

15. Capacity expansion in stochastic flow networks, with C. Alexopoulos, *Prob. in the Eng. and Infor. Sci.*, **6**, 1992, 99-118.

16. Sensitivity analysis in stochastic flow networks using the Monte Carlo method, *Networks*, **23**, 1993, 605-621, with C. Alexopoulos.

Design of Monte Carlo and Discrete-Event Simulation Experiments

1. Improving Monte Carlo efficiency by increasing variance, with V.G. Kulkarni, *Management Science*, **38**, 1992, 1432-1444.

2. Evaluating best-case and worst-case variances when bounds are available, with B. Granovsky and D.S. Rubin, *SIAM Journal on Scientific and Statistical Computing*, **13**, 1992, 1347-1361.

3. Evaluating best-case and worst-case coefficients of variation when bounds are available, with D.S. Rubin, *Prob. in the Eng. and Infor. Sci.*, **6**, 1992, 309-322.

4. Bounding the variance in Monte Carlo experiments, with D.S. Rubin, *Oper. Res. Letters*, **11**, 1992, 243-248.

5. With V.G. Kulkarni, Improving Monte Carlo efficiency by increasing variance, *Man. Sci*, **38**, 1992, 1432-1444.

6. Choosing sample path length and number of sample paths when starting in the steady state, *Oper. Res. Letters*, **16**, 1994, 209-219.

7. Markov chain sampling and the product estimator, *Oper. Res.*, **42**, 1994, 1137-1146.

8. Coordinate selection rules for Gibbs sampling, *Ann. Appl. Prob.*, **6**, 1996, 444-465.

9. An implementation of the batch means method, *Informs Journal on Computing*, **9**, 1997, with L. S Yarberry.

10. An analysis of Swendsen-Wang and related sampling methods, *J. Roy. Stat. Soc. B*, **61**, 623-641.

Applications

1. Operations research in health services, with J. D. Thompson, *Medical Progress Through Technology*, **2**, 1973, 1-6.

2. Harvesting Models for the Northern Anchovy, with M.J. Sobel, prepared for the *National Marines Fisheries Service*, Honolulu, 1977.

3. Modeling growth-time and weight-length relationships in a single year-class fishery with examples for North Carolina pink and brown shrimp, with Marc-David Cohen, *Canadian J. of Fisheries and Aquatic Sciences*, **37**, 1980, 1000-1011.

4. Statistical considerations in the simulation of flexible manufacturing systems, *Operations Research Models in Flexible Manufacturing*, eds. F. Archetti, M. Lucertini and P. Serafimi, Springer-Verlag, 1989.

INVITED PRESENTATIONS (1981+)

September 1981:	Seminar, Curriculum in Operations Research, North Carolina State University
October 1981:	Paper, ORSA/TIMS National Meeting, Houston
December 1981:	Panelist, Winter Simulation Conference, Atlanta
May 1982:	Keynote paper, Conference on Simulation, sponsored by New York Chapter of the Association for Computer Machinery, Special Interest Group on Simulation
September 1982:	Seminar, Department of Mathematical Sciences, Johns Hopkins University
October 1982:	Seminar, New York Chapter of the Association for Computer Machinery, Special Interest Group on Simulation
October 1982:	Paper, ORSA/TIMS National Meeting, San Diego
December 1982:	Seminar, School of Business Administration, University of Arizona

December 1982: Panelist, Winter Simulation Conference, San Diego

December 1982: Seminar, Department of Operations Research, Naval Postgraduate School, Monterey, California

December 1982: Tutorial, Winter Simulation Conference, Washington, DC

May 1984: Paper, ORSA/TIMS National Meeting, San Francisco

January 1985: Keynote address, Third Annual Symposium on Applied Probability, Williamsburg, Virginia

May 1985: Paper at ORSA/TIMS National Meeting in Boston

May 1985: Paper at Air Force Office of Scientific Research Conference on Reliability, Availability and Maintainability, Luray, Virginia.

July 1985: Lectures, Department of Mathematics, University of Milan.

July 1985: Keynote address, IBM Symposium on Discrete Event Simulation, Oberlech, Austria

November 1985: Paper at ORSA/TIMS Meeting, Dallas

October 1986: Paper at ORSA/TIMS National Meeting, Miami

December 1986: Paper and Session Chairman, Winter Simulation Conference, Washington, DC

May 1987: Paper at ORSA/TIMS National Meeting, New Orleans.

May 1987: Paper and co-chairman at Fourth Conference on Issues in Simulation, Rutgers University at Newark, NJ.

May 1987: Paper at Second International Workshop on Applied Mathematics and Performance Reliability Models of Computer/Communication Systems, University of Rome, Italy.

August 1987: Paper at International Federation of Operations Research Societies, Buenos Aires, Argentina.

October 1987: Invited lectures on statistical considerations in the simulation of flexible manufacturing systems, Advanced School of Operations Research in Flexible Manufacturing, International Centre for Mechanical Sciences, Udine, Italy.

December 1987: Paper at Winter Simulation Conference, Atlanta, Georgia.

April 1988: Invited seminar: How exact are "exact" reliability computations, Department of Applied Mathematics, State University of New York at Stony Brook.

November 1988: Invited lecture at Symposium on Random Number Generation, Lambrecht, West Germany.

December 1988: Invited paper (with C. Alexopoulos), Winter Simulation Conference, San Diego, California.

December 1988: Invited lecture, the Rand Corporation, Santa Monica, California.

February 1989: Invited seminar: Sensitivity analysis using the Monte Carlo acceptance-rejection method, Department of Mechanical Engineering, University of Texas at Austin.

May 1989: Invited paper, ORSA/TIMS meeting, Vancouver, B.C.

October 1989: Invited seminar: Statistical considerations in the Simulation of Manufacturing Systems, Fuqua School of Business, Duke University.

February 1990: Invited seminar: Improving efficiency by increasing variance, School of Systems and Industrial Engineering, Georgia Institute of Technology.

February 1990: Invited seminar: Improving efficiency by increasing variance, Institute of Statistics and Decision Sciences, Duke University.

December 1990: Invited paper: Sensitivity analysis with regard to capacity expansion in network flow simulation, Winter Simulation Conference, New Orleans.

January 1991: Invited paper: Improving Monte Carlo efficiency by increasing variance, Applied Probability Conference, Monterey.

January 1991: Improving Monte Carlo efficiency by increasing variance, 17th Annual NSF Conference on Design and Manufacturing Systems Research, University of Texas at Austin.

March 1991: Invited paper: Estimating Volume and Count, Institute of Statistics and Decision Sciences, Duke University.

April 1991: Invited paper: Estimating Volume and Count, Department of Operations Research, University of North Carolina at Chapel Hill.

May 1991: Invited paper: Generating a Sample for a k-Cell Table with Changing Probabilities in $O(\log_2 k)$ time, ORSA/TIMS National Meeting, Nashville.

November 1991: Invited speaker, Distinguished Lecture Series, Dept. of Industrial Engineering, Texas A & M University:
1. Markov chain sampling as a computational technique
2. Choosing warmup interval k and sample size n when generating Monte Carlo data from Markov chains.

December 1991: Invited paper, Estimating volume and count, Winter Simulation Conference, Phoenix, AZ.

January 1992: Presenter, A Monte Carlo sampling plan based on product form estimation, 1992 NSF Design and Manufacturing Systems Grantees Conference, Atlanta, GA.

June 1992: Invited paper, Choosing warm-up interval k and sample size n when generating Monte Carlo data from a Markov chain, Canadian Mathematical Society Summer Meeting.

September 1992: Invited seminar, Choosing warm-up interval k and sample size n when generating Monte Carlo data from a Markov chain, Curriculum in Operations Research, North Carolina State University, Raleigh, NC.

November 1992: Invited paper, Speeding convergence to the steady-state in discrete event simulation, ORSA/TIMS Conference, San Francisco.

November 1992: Contributed paper, Choosing warm-up interval k and sample size n when generating Monte Carlo data from a Markov chain, ORSA/TIMS Conference, San Francisco.

January 1993: Choosing sample path length and number of sample paths when starting in the steady state, NSF Grantees Conference, Charlotte, NC.

July 1993: Invited keynote speaker, Choosing sample path length and number of sample paths when starting in the steady state, SIAM Conference on Monte Carlo Methods, San Francisco.

April 1994: Contributed presentation, An implementation of the batch means method, ORSA/TIMS Meeting, Boston.

November 1995: Invited paper, Coordinate selection rules for Gibbs sampling, INFORMS National Meeting, New Orleans.

November 1995: Contributed paper with Cristina Arguelles, Exploiting special structure in manufacturing simulation, INFORMS National Meeting, New Orleans.

March 1997: Invited seminar, Convergence bounds for Gibbs and Hastings-Metropolis sampling, Industrial Engineering Department, North Carolina State University.

September 1997: Invited presentation, Operations research at the University of North Carolina at Chapel Hill, Hoechst Marion Roussel Headquarters, Kansas City, Missouri.

December 1997: Invited paper with C. Alexopoulos and A. Seila, Computational experience with the batch means method, 1997 Winter Simulation Conference, Atlanta, Georgia.

April 1998: Invited seminar, Making it easier to analyze sample path data from simulation and Monte Carlo experiments, Department of Industrial Engineering, University of Michigan, Ann Arbor.

June 1998: Invited presentation, LABATCH.2: Software for analyzing sample path data, Third International Conference on Monte Carlo and Quasi-Monte Carlo Methods, Claremont Graduate School, Claremont, CA.

December 1998: Tutorial, LABATCH2: Software for statistical analysis of simulation sample path data, 1998 Winter Simulation Conference, Washington, D.C.

STUDENT SUPERVISION

Operations Research
Masters Expository Papers
Advisor

Neely, E.P. (1975). A semi-Markov model to study long-term sequelae to induced abortion.

McDaniel, H.J. (1975). Procedures for generating random variates on a digital computer.

Martin, E.M. (1975). A study of financial support to the performing arts.

Johnson, J.R. (1976). Variance reduction techniques for discrete event digital simulation.

Pitts, K. (1976). Simulation timing routines.

Hardy, A.V. (1977). Techniques of simulating a library cataloguing department using GPSS.

Miller, M. (1977). Importance sampling as a variance reduction technique in simulations.

Dunham, J.R. (1978). An experimental analysis of two stopping rules for determining the length of simulation experiments.

Adams, M.S. (1979). The use of operations research in emergency medical services planning.

Fairbairn, E.A. (1979). Two algorithms for cluster analysis.

Martin, C. (1980). Exponential alternatives to gaussian ARMA processes.

Ballou, L.B. (1980). A review of mathematical models for fishery management.

Tedone, M.J. (1981). Simulation of nonhomogeneous poisson processes.

Fowler, H.J. (1982). Queueing network models: The Kelly work on reversibility, and computer applications.

Lent, J.R. (1983). Heuristic solution technique for an air quality decision problem formulated as an integer program.

Kretch, S. (1988). A proposal for inventory management, University of North Carolina, Microcomputing Support Center.

Keyes, E. (1988). Disk parameter sizing for network file servers in the microcomputer laboratories at the University of North Carolina at Chapel Hill.

Duvall, A. (1992). The beginnings of an automated vehicle maintenance record keeping program for Chapel Hill public works.

Jagtap, S. (1992). Inventory management at the university purchasing department.

Huang, X. (1992). Threshold - the transient behavior of a Markov chain.

Reader

Orlosky, P.A. (1977). Health clinic scheduling in the North Carolina prison system.

Chung, S.K. (1977). An application on queueing service.

Sherman, D. (1978). Implementation of a direct search solution procedure for a marketing model of the family planning process.

Bancroft, L.C. (1978). A study of bank asset and liability management models.

Rimmler, J.H. (1981). Some markov chain estimating techniques.

Boylston, D.A. (1982). Multicriteria decision making.

Abed, C.I. (1983). Automatic needs of the bibliographical services department, UNC Academic Affairs Library.

Johnson, J.K. (1983). Collection management using circulation data.

Allen, B. (1984). Design and analysis of a survey sample for the collection development department of the Academic Affairs Library, UNC-CH.

Spencer, G. (1985). A study of flow shop scheduling in the fastener industry.

Weatherford, J. (1991). A review of METRIC and the military interest in multi-echelon inventory theory.

Yellin, L. (1993). An analysis of patient flow and physician scheduling in the University of North Carolina ambulatory care center.

Cohen, S. (1993). An analysis of the advertising production department at Glaxo, Inc.

Hart, L. (1994). Automated sampling for outpatient surveying at the University of North Carolina Hospitals.

Krest, S. (1994). Creating a more efficient U-Search scheduler program for the Davis Library reference department.

Kunkel, J.A. (1994). Recommendations for improving the efficiency of the reserve reading operations of the Undergraduate Library.

Gutmann, J. (1995). Optimal operations and long-range planning of the OWASA water supply system.

Kash, S. (1995). Effects of current and increased demand on proposed Triangle Research Libraries network document delivery service.

Orringer, K. (1995). Triangle Research Libraries Network: delivering route analysis.

Keyes, K. (1996). A call-taker program for the Chapel Hill Police Department.

Hawke, C. (1996). Modeling the optimal life cycle of faculty personal computers.

Goodstein, J. (1996). Expanding the plastics recycling system at the University of North Carolina at Chapel Hill.

West, S. (1997). Reducing the delays in the work flow of new monographs through the technical services departments of the academic affairs library of the University of North Carolina at Chapel Hill.

Operations Research
Ph.D. Dissertations
Advisor

Seila, A.F. (1976). Quantile estimation methods in discrete event simulations of regenerative systems.

Adlakha, V.G. (1979). Starting and stopping rules for data collection in queueing simulations.

Huang, B.S. (1980). Antithetic sampling method: A variance reduction technique in computer simulation.

Shaw, T.Y. (1988). Monte Carlo methods for reliability analysis of stochastic flow networks.

Alexopoulos, C. (1988). Maximum flows and critical cutsets in stochastic networks with discrete edge-capacity levels.

Yarberry, L.S. (1993). Incorporating a dynamic batch size selection mechanism in a fixed-sample-size batch means procedure.

Arguelles, M.C. (1997).Exploiting special structure to enhance efficiency of manufacturing simulation, in preparation.

Chairman

Bonazzi, A. (1991). Modelling an intransitive perference among objects with transitively ordered attributes.

Reader

Shultz, C.R. (1979). (s, S) inventory policies for a wholesale warehouse inventory system.

Kastner, G. (1980). Some models for cost effective analyses of infection surveillance and control programs in U.S. hospitals.

Yang, E. (1985). A class of methods for solving large convex quadratic programs subject to box constraints.

Cohen, M.D. (1987). A methodology for the analysis of fishery management policies, with an example of the North Carolina brown shrimp fishery.

Corea, G. (1989). Recursive methods and bounds for performance evaluation of stochastic networks.

Puryear, L. (1995). Stability and queueing time analysis of reader-writer queues.

Reid, T. (1997). Admission control for transient source systems.

Biostatistics (Ph.D. Reader)

Delong, E.R. (1979). Estimation of general parameters using progressively truncated U-Statistics.

Shulman, S.A. (1977). Two topics in semi-Markov processes.

Business Administration (Ph.D. Reader)

Icerman, J.D. (1977). The prediction of corporate cash flows: An analysis of relevant models and presently available financial statement information.

Computer Science (Ph.D. Reader)

Zarling, R.L. (1976). Numerical solution of nearly decomposable queueing networks.

Statistics (Ph.D.)

Advisor

Moore, L.R. (1979). Quantile estimation in regenerative processes.

Risko, K.J. (1982). Binomial population selection procedures for fixed unequal sampling costs.

Reader

Schoenfelder, J. (1981). Analysis of covariance matching.