

Edward K. Baker

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School of Buiness
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Current Academic Rank: Professor

Primary Department: Management Science

Secondary or Joint Appointments: Industrial Engineering, Marine Affairs

Citizenship: USA

HIGHER EDUCATION

Institutional:

Doctor of Business Administration, Management Science and Statistics,
College of Business and Management, University of Maryland, 1979.

Master of Science, Management Science, Johns Hopkins University, 1972.

Bachelor of Engineering Science, Industrial Engineering and Operations Research,
Johns Hopkins University, 1969.

EXPERIENCE

Academic:

Professor, Management Science Department, School of Business Administration, University of Miami,
August 1988 - present.

Chair, Management Science Department, School of Business Administration, University of Miami, August
1988 – May 2002, and August 2007 - present.

Faculty Master, Stanford Residential College, University of Miami, August 1990-1994.

Interim Associate Dean for Graduate Programs, School of Business Administration, University of Miami,
August 1989-September 1990.

Associate Professor, Management Science Department, School of Business Administration, University of
Miami, 1982-1988.

Assistant Professor, Management Science Department, School of Business Administration, University of
Miami, 1978-1982.

Lecturer in Operations Research and Statistics, College of Business and Management, University of
Maryland, 1973-1978.

Non-Academic:

Operations Research Analyst, Westinghouse Electric Corporation, 1969-1973.

PUBLICATIONS

Juried or Refereed Journal Articles and Exhibitions:

Meester, G., Mehrotra, A., Ault, J., and Baker, E. "Designing Marine Reserves for Fishery Management, Management Science. Vol. 50, No. 8, August 2004. 1031-1043.

Silberholz, M., Golden, B., and Baker, E. "Using Simulation to Study the Impact of Work Rules on Productivity at Marine Container Terminals". Computer and Operations Research. Vol. 18. No.5. 1991. pp. 433-452.

Kelly, J., Golden, B., and Assad, A., and Baker, E. "Controlling Rounding of Tabular Data". Operations Research. Vol. 38, No.5. 1990. pp. 760-772.

Baker, E. and Schaffer, J. "Solution Improvement Heuristics for the Vehicle Routing and Scheduling Problem with Time Window Constraints," American Journal of Mathematical and Management Sciences, Vol.6, Nos. 3 and 4. (pp. 261-300). 1987.

Assad, A., Golden, B., Wasil, E., and Baker, E. "Experimentation in Optimization,". European Journal of Operational Research. Vol. 27 (pp. 1-16). 1986.

Golden, B. and Baker, E. "Future Directions in Logistics Research," Transportation Research, Vol. 19A, No. 5/6, (pp. 405-409). November 1985.

Bodin, L., Baker, E. and Fisher, M. "The Development and Implementation of a Heuristic Set Covering Based System for Air Crew Scheduling,". Transport Policy and Decision Making, Vol. 3, (pp. 95-110). 1985.

Baker, E. and Sugrue, P. "Experience with Microcomputer Models Developed for a Caribbean Tanker Company," The Logistics and Transportation Review, Vol. 20, No. 4, (pp. 427-441). December 1984.

Baker, E. "An Exact Algorithm for the Time Constrained Traveling Salesman Problem," Operations Research, Vol. 31, No. 5, (pp. 938-945). September 1983.

Golden, B., DeArmon, J., and Baker, E. "Computational Experiments with Algorithms for a Class of Routing Problems," Computers and Operations Research, Vol. 10, No. 1, (pp. 47-59). 1983.

Baker, E. "Vehicle Routing with Time Window Constraints". The Logistics and Transportation Review, Vol. 18, No. 4, (pp. 385-401). 1982.

Baker, E. "Heuristic Algorithms for the Weighted Set Covering Problem," Computers and Operations Research, Vol. 8, No. 4, (pp. 303-310). 1981.

Baker, E. and Fisher, M. "Computational Results for Very Large Airline Crew Scheduling Problems," OMEGA, The International Journal of Management Science, Vol. 9, No. 6, (pp. 613-618) 1981.

Baker, E., Bodin, L., Finnegan, W. and Ponder, R. "Efficient Heuristic Solutions to an Airline Crew Scheduling Problem," AIIE Transactions, Vol. 11, No. 2, (pp. 79-85). June 1979.

Manuscripts Under Review/Under Revision:

"A Profile of David Bendel Hertz". Invited for Profiles in Operations Research (tentative title), Arjang A. Assad and Saul I. Gass, editors. Springer Publishers, forthcoming, 2008.

Books and Monographs Published:

Extending the Horizons: Recent Advances in Computing, Optimization, and Decision Technologies. Baker, Joseph, Mehrotra, and Trick, editors. Springer Operations Research/Computer Interface Series. 2007.

Book Reviews

Baker, E. "A Review of Applied Production and Operations Management by Evans, Anderson, Sweeney, and Williams. Operations Management Review, Vol. 3, No. 2. (pp. 25-26). Winter 1985.

Golden, B. and Baker, E. "A Review of Network Optimization Practice by David K. Smith." Journal of the American Statistical Association, Vol. 78, No. 384 (pp. 1005-1006). December 1983.

Baker, E. "A Review of Simulation Modeling and Analysis by Law and Kelton". American Journal of Mathematical and Management Sciences, Vol. 3, No. 1 (pp. 81-85). January 1983.

"A Review of Network Flow Programming by Jensen and Barnes." American Journal of Mathematical and Management Sciences. Vol. 2, No. 3 (pp. 253-258). 1982.

Other Works, Publications, and Abstracts:

Book Chapters:

Joseph, A. and Baker, E. "Cardinality and the Simplex Tableau for the Set Partitioning Problem". *Extending the Horizons: Recent Advances in Computing, Optimization, and Decision Technologies*. (Baker, Joseph, Mehrotra, and Trick, editors.) Springer Operations Research/Computer Interface Series. 2007.

Joseph, A. and Baker, E. "Parametric Cardinality Probing in Set Partitioning Problems. Perspectives in Operations Research: Papers in Honor of Saul Gass's 80th Birthday, (Alt, Fu, and Golden, editors.) Springer Operations Research/Computer Science Interface Series. 2006.

Baker, E., Joseph, A., and Rayco, B. "Generating Set Partitioning Test Problems with Known Optimal Integer Solutions", in The Next Wave in Computing, Optimization, and Decision Technologies, (Golden, Wasil and Raghavan, editors.) Springer Operations Research/Computer Science Interface Series. January 2005. pp.29-44.

Baker, E. "The Evolution of Microcomputer-based Vehicle Routing Software: Case Studies in the United States", in Vehicle Routing Methods and Studies, Paulo Toth and Daniele Vigo, Editors. SIAM Monographs on Discrete Mathematics and its Applications. North Holland Publishing. (pp. 353-361), 2002.

Baker, E., Villanueva, M., Wittpenn, N, and Austin, B. "A Microcomputer-Based Geographic Information System with Marketing Application" in Impact of Recent Computer Advances on Operations Research. Sharda et al. (Eds.) North Holland Press. (pp. 248-262). 1989.

Silberholz, M., Golden, B., and Baker, E. "Simulating a Marine Container Terminal on the Macintosh II" in Impact of Recent Computer Advances on Operations Research. Sharda, et al. (Eds.) North Holland Press. (pp. 433-446). 1989.

Solomon, M., Baker, E., and Schaffer, J. "Vehicle Routing and Scheduling Problems with Time Window Constraints: Efficient Implementations of Solution Algorithms" in Vehicle Routing Methods and Studies, Golden and Assad (Eds.) Elsevier Science Publishers, North Holland Press. (pp. 85-105). 1988.

Conference Proceedings

Baker, E. and Rohrer, L. "Using Patient Acuity Levels to Improve Staff Scheduling in a Chemotherapy Unit", in the Proceedings of the Decision Sciences Institute National Meeting, Boston 2004. pp. 6531-6536.

Baker, E. and Villanueva, M. "Level of Service Criteria for Recreational Boat Traffic and Its Effect on Marine Resource Development", in the Proceedings of the International Conference on Productivity and Quality Research. Miami, February, 2004.

Niggley, J., Taveras, M., Gitlow, H., and Baker, E. "System Improvement in the Department of Photography of the Bascom Palmer Eye Institute", in the Proceedings of the International Conference on Productivity and Quality Research. Miami, Feb. 2004.

Taveras, M., Niggley, J., Gitlow, H. and Baker, E. "Decreasing Patient Wait times for the Echography Service of an Academic Acute Care Ophthalmology Hospital", in the Proceedings of the International Conference on Productivity and Quality Research. Miami, February, 2004.

Baker, E. and Villanueva, M. "The Simulation of Recreational Boat Traffic", in the Proceedings of the Decision Sciences Fifth International Conference, Athens, Greece. Despotis and Zopounidis, Eds. Volume II, pp. 1181-1183. 1999.

Villanueva, M. and Baker, E. "Boater and Marina Hurricane Preparation", in the Recommendations for Hurricane Preparations and Responses for Boating Communities and Industries. D. Pybas and M. L. Villanueva, Eds. Florida Sea Grant College Program, August 1995. pp. 28-36.

Silberholz, M., Golden, B., and Baker, E. "Productivity Issues in Marine Container Terminals" in the Proceedings of the Southeast Institute of Management Science. 1988.

Golden, B. and Baker, E. "A Class of Bus Routing Problems" in the Proceedings of the Southeast Institute of Management Science. 1988.

Stewart, W. and Baker, E. "Approximate Solutions to Stochastic Vehicle Routing Problems" in the Proceedings of the Southeast Institute of Management Science (pp. 295-297). October 1985.

Golden, B., Alfaro, J., Baker, E. and Schaffer, J. "The Vehicle Routing Problem with Backhauling: Two Approaches" in the Proceedings of the Southeast Institute of Management Science, (pp. 90-92). October 1985.

Baker, E. "A Microcomputer Based Instructional Support System for an Introductory Survey Course in Management Science" in the Proceedings of the S.E. AIDS, (pp. 184-186). New Orleans Meeting. March 1985.

Baker, E. and Schaffer, J. "Computational Experience with Branch Exchange Heuristics for Vehicle Routing Problems with Time Window Constraints" in the Proceedings of S.E. TIMS, (pp. 121-124). September 1984.

Golden, B. and Baker, E. "The Analysis of Network Optimization Algorithms: Part I." University of Maryland Management Science and Statistics Working Paper 82-022 and in the Proceedings of S.E.

TIMS, (pp. 252-259). Fall 1983.

Golden, B. and Baker, E. "The Analysis of Network Optimization Algorithms: Part II." University of Maryland Management Science and Statistics Working Paper 82-022 and in the Proceedings of S.E. TIMS, (pp. 259-278). Fall 1983.

Golden, B., Cheysens, F. and Baker, E. "Network Optimization Heuristics: A Brief Overview" in the Proceedings of the N.E. AIDS, (pp. 104-106). March 1983.

Baker, E. and Sugrue, P. "A Microcomputer Simulation Model for a Tanker Scheduling Problem" in the Proceedings of the S.E. AIDS. February 1983.

Baker, E. "Practical Heuristic Methods for Large Scale Airline Crew Scheduling Problems." in the Proceedings of the Institute of Industrial Engineers, (pp. 163-170). Cincinnati meeting, Fall 1982.

Baker, E. and Davis, K. "A Matching Approach for the Solution of an Airlines Crew Scheduling Problem" in the Proceedings of the American Institute for Decision Sciences (pp. 274-276). San Francisco meeting, Fall 1982.

Baker, E. "An Overview of Recent Developments in Crew Scheduling." in the Proceedings of the American Institute for Decision Sciences. Vol. 2 (pp. 298-299). Boston meeting, 1981.

Baker, E. "The Traveling Salesman and the Longest Path Problems" in the Proceedings of S.E. TIMS, (pp. 79-186). October 1980.

Baker, E. and Frey, K. "A Heuristic Set Covering Based System for Air Crew Scheduling" in the Proceedings of the S.E. AIDS, (pp. 224-227). February 1980.

Technical Reports

Baker, E. and Villanueva, M., "Naples Bay Boat Traffic Study and Model, 2002 Update." Boating Research Center, University of Miami. Technical Report. November 1, 2002. 38 pages.

Baker, E. and Villanueva, M. "A Simulation of Recreational Boat Traffic in Naples Bay Florida." Boating Research Center, University of Miami. Technical Report. May 1, 1999. 165 pages.

Baker, E. and Villanueva, M. "A Survey of Naples Bay Area Resident Boaters." Boating Research Center, University of Miami. Technical Report. May 25, 1998. 35 pages.

Baker, E. and Villanueva, M. "An Analysis of Boat Use Patterns in Palm Beach County, Florida", Boating Research Center, University of Miami. Technical Report. August 15, 1995. 254 pages.

Baker, E. and Villanueva, M. "Analysis of Hurricane Andrew's Economic Damage and Recovery Options for the Boating, Marina, and Marine Services Industry". Florida Sea Grant Report, TP-72. 1993. 100 Pages

Baker, E. and Villanueva, M. "The Impact of Boat Use Patterns and Marine Traffic on Manatees in Biscayne Bay, Dade County, Florida", Boating Research Center, University of Miami. Technical Report. August 5, 1991. 88 pages.

Fishe, P., Baker, E. and Villanueva, M. "Economic Impact of the Yacht Brokerage Industry on the Florida Economy", Boating Research Center, University of Miami. Technical Report. October 28, 1991. 35 pages.

PROFESSIONAL

Funded Research Performed:

"A Survey of Recreational Boat Traffic in Naples Bay Florida." Collier Enterprises, Inc. \$15,000. 1998. Principal Investigator.

"Development of an Integrated Logistics Model." Ryder Dedicated Logistics, Inc. \$13,877. Principal Investigator. Summer 1995.

"An Artificial Reef Siting Model: Phase 1 the Geographic Information System:, University of Miami General Research Support Award. \$4350. Summer 1995.

"A Study of Recreational Boat Traffic in Palm Beach County, Florida", Florida Department of Natural Resources. April 1993 to February 1994. \$96,534. Principal Investigator.

"Modification and Improvement of a Paratransit System", Ryder Dedicated Logistics, Inc. August 15-December 31, 1993. \$33,000. Principal Investigator.

"The Impact of Hurricane Andrew on Recreational Boating in Dade County, Florida". Florida Sea Grant. September 1992 to March 1993. \$20,175. Principal Investigator.

"Geographic Information System Inventory of the Principal Marinas in Dade County Florida", Max Orovitz Research Award, University of Miami. June 1, 1992 to August 1, 1992.

"Marina Hurricane Evacuation Study for Dade County, Florida." Dade County Planning Department. February 1990 to December 1990. \$50,000. Principal Investigator

"Demonstration of Expert System Methodology Applied to Vehicle Routing and Scheduling." University of Miami, School of Business Administration Corporate Affiliate Research Grant, May 15, 1986 to June 30, 1986. Principal Investigator.

"Development of Advanced Algorithms for Vehicle Routing and Scheduling." Ryder Truck Rental, Inc. August 15, 1985 to December 31, 1985. \$69,514. Co-Principal Investigator.

"Application of Recent Advances in Multiprocessor Scheduling to Vehicle Routing and Scheduling Problems with Time Window Constraints." University of Miami Summer Award in Business and Social Sciences. June 15, 1985 to August 15, 1985. \$5,000. Principal Investigator.

"Management Science Programs for the IBM PC." IBM Educational Development Program. November 1, 1984 to August 31, 1985. \$6,031 (Equipment). Principal Investigator.

Development of a User Interactive Computerized Bid-line Model for Air Florida. August 15, 1981 to December 31, 1982. \$32,500. Principal Investigator.

"Large Scale Implementation of a Time Oriented Vehicle Scheduling Model." Office of Policy Research, Urban Mass Transit Administration, Department of Transportation. August 1, 1981 to July 31, 1982. \$53,799. Principal Investigator.

"Ellipsoid Based Algorithms for Set Covering." 1981 Summer Research Grant Award, University of Miami, School of Business Administration. July 1981. Principal Investigator.

"Time Oriented Vehicle Routing and the Traveling Salesman Problem." 1980 Summer Research Grant Award, University of Miami, School of Business Administration. June 1, 1980 to July 31, 1980. Principal Investigator.

Editorial Responsibilities:

Reviewer/Discussant:

American Journal of Mathematical and Management Science
Decision Sciences Institute
Computers and Operations Research
Decision Sciences
European Journal of Operations Research
Logistics and Transportation Review
Management Science
National Science Foundation
Operations Research
Transportation Research
Transportation Science

Professional and Honorary Organizations:

Institute for Operations Research and Management Science
Education Committee - 1984
Program Committee Miami 1986 Joint National Meeting
Program Committee Miami 2001 Joint National Meeting
Local Arrangements Co-chair
Chair of the Chapters Subcommittee, 2001 - 2002
Subdivisions Council, 2003
President-South Florida Chapter
Local Arrangements Co-Chair, Integer Programming Conference, Coral Gables,
June, 2006
Program Co-Chair, INFORMS Computing Society, Coral Gables, Florida, January
2007
Decision Sciences Institute
Track Co-Chair, Operations Research, 1999 International Meeting, Athens
Production and Operations Management Society
Track Co-Chair, Global POM, 2001 National Meeting, Orlando

Honors and Awards:

Propeller Club Member of the Year, Propeller Club of the Port of Miami,
Miami, Florida, 1989 and 1998
Nash Memorial Distinguished Doctoral Alumnus,
College of Business and Management, University of Maryland, 1984

Listings:

Other Professional Activities:

Recent Presentations:

"Using Patient Acuity Levels to Improve Staff Scheduling in a Chemotherapy Unit", (with L. Rohrer)

presented at the Decision Sciences Institute National Meeting. Boston, November 2004.

“Level of Service Criteria for Recreational Boat Traffic and Its Effect on Marine Resource Development”, (with M. Villanueva) presented at the International Conference on Productivity and Quality Research. Miami, FL February, 2004.

“A Longitudinal Study of Recreational Boat Traffic” presented at the 2003 INFORMS National Meeting. Atlanta, October 2003

“The GMAT: A Rationale for Teaching Operations Research in the Undergraduate Business Curriculum”, presented at the 2002 INFORMS National Meeting, San Jose, November 2002.

“Designing Marine Reserves”, presented at the 2001 INFORMS National Meeting, Miami, November 2001, with G. Meester, A. Mehrotra, and J. Ault.

“Math Modeling, It’s a Gass”, presented at the 2001 INFORMS National Meeting, Miami, November 2001.

TEACHING

Teaching Awards Received:

Excellence in Teaching Award, Executive MBA Program,
University of Miami, School of Business Administration, 1989
Excellence in Teaching Award,
University of Miami, School of Business Administration, 1980 and 1984

Teaching Specialization:

Applied Business Statistics, Management Science Applications,
Computer Simulation Modeling, Linear and Integer Programming

Thesis and Dissertation Advising:

Suxi, L. "The Effect of Demand Uncertainty on Price Dispersion: The Case of the Airline Industry". Ph. D. Department of Economics. Expected May 2007. Committee member.

Amaba, B.A. "Process Activity Flow Framework: The Management of Information Technology in an Extended Software Development Environment". Ph. D. in Industrial Engineering. December 2004. Committee Member

Meester, G.A. "A Mathematical Programming and Simulation-based Approach to Determining Critical Factors in the Design of Effective Marine Reserve Plans for Coral Reef Fishes". Ph.D. Marine Biology and Fisheries. May 2000. Committee Member

Cuffe, B.P. "The Joint Imputed Poisson Distribution and its Application to Minimum Cost Maintenance Scheduling". Ph. D., Department of Management Science. May 1993.

Wang, X. "Reward Functions and Markov Strategies in Finite-Stage Stochastic Decision Problems". Ph.D., Department of Mathematics. July, 1992. Committee member.

Younkin, W.F., "Speededness as a Source of Test Bias for Non-Native English Speakers on the College Level Academic Skills Test," Ph.D., Educational Research, 1986, Committee Member.

Yau, M.L., "Implementation of a Horizon Scheduling Model", Master of Science, Department of Management Science, May 1986. Thesis Advisor.

SERVICE

University Committee and Administrative Responsibilities:

Faulty Senate Alternate, School of Business, 2007-2008
School Council, School of Business, 2003- present
Chairman, Management Science Department, 1988- 2002
Interim Associate Dean for Graduate Programs, 1989-1990
University Classroom Scheduling Task Force, 2001-2002
Faculty Advisor, Student Propeller Club, 1984-present
Faculty Advisor, INFORMS Student Chapter, 2003-present

Community Activities:

Finance Committee Chair, Wesley Foundation, Coral Gables, Florida
The Propeller Club of Miami
Delta Sigma Pi, Beta Gamma Sigma, Iron Arrow
Consultant to:
Air Florida, Miami, Florida
Applied Technology and Management, Gainesville, Florida
Collier Enterprises, Naples, Florida
Dade County Transit Agency, Miami, Florida
Environmental Protection Agency, Washington, D.C.
Federal Express Corporation, Memphis, Tennessee
Norwegian Caribbean Cruise Lines, Miami, Florida
Ryder Truck Rental, Inc., Miami, Florida
Tropigas International, Coral Gables, Florida