

# CURRICULUM VITAE

## **Rhonda Righter**

Professor of IEOR  
Chair of the Engineering Faculty

Department of Industrial Engineering  
and Operations Research  
University of California  
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## **RESEARCH INTERESTS**

Stochastic Modeling and Optimization, with Applications to Manufacturing, Service Operations, Computer Communications, Telecommunications.

## **EDUCATION**

Ph.D., University of California, Berkeley, May, 1986, Operations Research, concentrating in Stochastic Modeling and Optimization.

Minors: Electrical Engineering (Communications) and Statistics.

Research Advisor: Sheldon Ross.

M.S., University of California, Berkeley, June, 1982, Operations Research.

B.S., Carnegie Mellon University, May, 1980, Applied Mathematics/Operations Research with a double major in Administration and Management Science.

## **ACADEMIC AND PROFESSIONAL EXPERIENCE**

Professor, University of California, Berkeley (2003 - present). Courses: Service operations management, stochastic processes I and II, probability and risk analysis for engineers.

Assistant (1987-1993), Associate (1993-1999), and Full Professor (1999-2003), Leavey School of Business, Santa Clara University. Courses: MBA and undergraduate statistics, advanced data analysis, production management, and computer-based decision models.

Visiting Researcher, INRIA (Institut Nationale de Recherche Informatique and Automatique), Sophia-Antipolis, France, 8/94-12/94, 4/96-7/96, and 5/99-6/99.

Visiting Researcher, UC Berkeley, 8/93-12/93.

Visiting Lecturer, Electrical Engineering and Computer Science, UC Berkeley, 7/86-6/87.  
Course: Signals and Systems.

Visiting Lecturer, Graduate School of Business, University of California, Davis, 1/87. Course: Simulation.

## PUBLICATIONS

1. "Scheduling Impatient Jobs in a Clearing System with Insights on Patient Triage in Mass Casualty Incidents." Co-authored with Nilay Tamk Argon and Serhan Ziya, *Probability in the Engineering and Informational Sciences*, to appear, 2008.
2. "Resource Allocation in Grid Computing," co-authored with Ger Koole, *Journal of Scheduling*, to appear, 2007.
3. "Dynamic Load Balancing with Flexible Workers," co-authored with H.-S. Ahn, *Advances in Applied Probability*, vol. 38, pp. 621-642, 2006.
4. "Staffing Decisions for Heterogeneous Workers with Turnover," co-authored with H.-S. Ahn and J.G. Shanthikumar, *Mathematical Methods of Operations Research*, vol. 62, pp. 499-514, 2005.
5. "The Effect of Service Time Variability on Maximum Queue Lengths in Batch M/G/1 Queues," co-authored with G. Koole and M. Nuyens, *Journal of Applied Probability*, vol. 42, pp. 883-891, 2005.
6. "Multi-actor Markov Decision Processes," co-authored with H.-S. Ahn, *Journal of Applied Probability*, vol. 42, pp. 15-26, 2005
7. "Bandwidth Allocation in a Wireless Broadcast System," co-authored with A. Celik and S. Nahmias, *International Journal of Information Technology & Decision Making*, vol. 2, pp. 629-640, 2003.
8. "Characterizing Losses During Busy Periods in Finite Buffer Systems," co-authored with E. Peköz and C. Xia, *Journal of Applied Probability*, vol. 40, pp. 242-249, 2003.
9. "Optimal Maintenance and Operation of a System with Backup Components," *Probability in the Engineering and Informational Sciences*, vol. 16, pp. 339-349, 2002.
10. "Scheduling in Multiclass Networks with Deterministic Service Times," *Queueing Systems: Theory and Applications*, vol. 41, pp. 305-320, 2002.
11. "Optimal Transmission Policies for Noisy Channels," co-authored with G. Koole and Z. Liu, *Operations Research*, vol. 49, pp. 892-899, 2001.
12. "The Impact of Cell Dropping Policies in ATM Nodes," co-authored with Z. Liu, *Operations Research*, vol. 41, pp. 66-78, 2001.
13. "Optimal Ordering of Operations in a Manufacturing Chain," co-authored with J. G. Shanthikumar, *Operations Research Letters*, vol. 29, pp. 115-122, 2001.
14. "A Stochastic Batching and Scheduling Problem," co-authored with G. Koole, *Probability in the Engineering and Informational Sciences*, vol. 15, pp. 465-479, 2001.
15. "Optimal Parallel Processing of Random Task Graphs," co-authored with Z. Liu, *Journal of Scheduling*, vol. 4, pp. 139-156, 2001.
16. "Expulsion and Scheduling Control for Multiclass Queues with Heterogeneous Servers," *Queueing Systems: Theory and Applications*, vol. 34, pp. 289-300, 2000.
17. "Scheduling of an Input-Queued Switch to Achieve Maximal Throughput," co-authored with E. Altman and Z. Liu, *Probability in the Engineering and Informational Sciences*, vol. 14, pp. 327-334, 2000.

18. "A Note on Losses in  $M/GI/1/n$  Queues," *Journal of Applied Probability*, vol. 36, pp. 1240-1243, 1999.
19. "A Brokered Market with Heterogeneous Suppliers and Consumers," *Journal of Applied Probability*, vol. 36, pp. 512-522, 1999.
20. "Scheduling Multiclass Input-Queued Switches," co-authored with Z. Liu, *Journal of Scheduling*, vol. 2, pp. 99-114, 1999.
21. "Optimal Load Balancing on Distributed Homogeneous Unreliable Processors," co-authored with Z. Liu, *Operations Research*, vol. 46, pp. 563-573, 1998.
22. "Multi-Class Production Systems with Setup Times," co-authored with J. G. Shanthikumar, *Operations Research*, vol. 46, pp. S146-S154, 1998.
23. "Independently Expiring Multiarmed Bandits," co-authored with J. G. Shanthikumar, *Probability in the Engineering and Informational Sciences*, vol. 12, pp. 453-468, 1998.
24. "Optimal Control of Tandem Reentrant Queues," co-authored with G. Koole, *Queueing Systems, Theory and Applications*, vol. 28, pp. 337-347, 1998.
25. "Optimal Computer Disk Access," *Probability in the Engineering and Informational Sciences*, vol. 12, pp. 211-220, 1998.
26. "Stochastic Scheduling for a Two-Machine Open Shop," *Journal of Applied Probability*, vol. 34, pp.733-744, 1997.
27. "Generalized Johnson's Rule for Stochastic Assembly Systems," *Naval Research Logistics*, vol. 44, pp. 211-220, 1997.
28. "Optimal Scheduling on Parallel Processors with Precedence Constraints and General Costs," co-authored with Z. Liu, *Probability in the Engineering and Informational Sciences*, vol. 11, pp. 79-93, 1997.
29. "Optimal Policies for Scheduling Repairs and Allocating Heterogeneous Servers," *Journal of Applied Probability*, vol. 33, pp. 536-547, 1996.
30. "Optimal Scheduling of Multiclass Stochastic Systems," *Probability in the Engineering and Informational Sciences*, vol. 10, pp. 229-241, 1996.
31. "On the Order of Tandem Queues," co-authored with D. Cheng, *Queueing Systems, Theory and Applications*, vol. 21, pp. 143-160, 1995.
32. "The Optimality of LEPT in Parallel Machine Scheduling," co-authored with C.-S. Chang, *Journal of Applied Probability*, vol. 31, pp. 788-796, 1994.
33. "The Stochastic Optimality of SEPT in Parallel Machine Scheduling," co-authored with C.-S. Chang, A. Hordijk, and G. Weiss, *Probability in the Engineering and Informational Sciences*, vol. 8, pp. 179-188, 1994.
34. "Bounds for Stopping Times with Application to the Approximation of Distribution Functions," co-authored with J. G. Shanthikumar, *Probability in the Engineering and Informational Sciences*, vol. 8, pp. 21-32, 1994.
35. "Scheduling." Chapter in *Stochastic Orders*, ed. by M. Shaked and J. G. Shanthikumar. New York: Academic Press, pp. 381-432, 1994.
36. "Extremal Properties of the FIFO Discipline in Queueing Networks," co-authored with J. G. Shanthikumar, *Journal of Applied Probability*, vol. 29, pp. 967-978, 1992.

37. "Optimal Dynamic Assignment of Customers to Heterogeneous Servers in Parallel," co-authored with S. Xu and J. G. Shanthikumar, *Operations Research*, vol. 40, pp. 1126-1138, 1992.
38. "Loading and Sequencing on Parallel Machines," *Probability in the Engineering and Informational Sciences*, vol. 6, pp. 193-199, 1992.
39. "Extension of the Bivariate Characterization for Stochastic Orders," co-authored with J. G. Shanthikumar, *Advances in Applied Probability*, vol. 24, pp. 506-508, 1992.
40. "Scheduling Jobs on Nonidentical IFR Processors to Minimize General Cost Functions," co-authored with S. Xu, *Advances in Applied Probability*, vol. 23, pp. 909-924, 1991.
41. "Scheduling Jobs on Heterogeneous Processors," co-authored with S. Xu, *Annals of Operations Research*, vol. 29, pp. 587-602, 1991.
42. "Distributed Simulation of Discrete-Event Systems," co-authored with J. C. Walrand, *IEEE Proceedings*, vol. 77, pp. 99-113, 1989. Invited paper. Reprinted in *Discrete Event Dynamic Systems*, edited by Y.C. Ho. Piscataway, NJ: IEEE Press, pp. 220-234, 1991.
43. "Multiprocessor Scheduling and the Sequential Assignment Problem," *Contemporary Mathematics*, vol. 125, pp. 105-115, 1991.
44. "Stochastically Maximizing the Number of Successes in a Sequential Assignment Problem," *Journal of Applied Probability*, vol. 27, pp. 351-364, 1990.
45. "On Extremal Service Disciplines in Single Stage Queueing Systems," co-authored with J. G. Shanthikumar and G. Yamazaki, *Journal of Applied Probability*, vol. 27, pp. 409-416, 1990.
46. "A Resource Allocation Problem in a Random Environment," *Operations Research*, vol. 37, pp. 329-338, 1989.
47. "Scheduling Multiclass Single Server Queueing Systems to Stochastically Maximize the Number of Successful Departures," co-authored with J. G. Shanthikumar, *Probability in the Engineering and the Informational Sciences*, vol. 3, pp. 323-333, 1989.
48. "Job Scheduling to Minimize Weighted Flowtime on Uniform Processors," *Systems and Control Letters*, vol. 10, pp. 211-216, 1988.
49. "The Stochastic Sequential Assignment Problem with Random Deadlines," *Probability in the Engineering and the Informational Sciences*, vol. 1, pp. 189-202, 1987.
50. "Training for Teaching Assistants," *Engineering Education*, vol. 78, pp. 135-136, 1987.

## BOOK REVIEWS

J. Blażewicz, K. H. Ecker, E. Pesch, G. Schmidt, J. Weglarz . *Scheduling Computer and Manufacturing* (Second Edition). Springer, 2002. In *Journal of Scheduling*, vol. 5, pp. 96-97, 2002.

## **PhD DISSERTATION COMMITTEES**

Ger Koole, “Stochastic Scheduling and Dynamic Programming,” Department of Mathematics and Computer Science, Leiden University, the Netherlands, 1992.

Bhaskara Marthi, “Concurrent Hierarchical Reinforcement Learning,” Department of Electrical Engineering and Computer Science, UC Berkeley, 2006.

Helena Ribeiro, “Customer loss probabilities and other performance measures of regular and oscillating queueing systems” Department of Mathematics, Technical University of Lisbon, Portugal, 2007.

Cheng Ee, “Policies in Routing,” Department of Electrical Engineering and Computer Science, UC Berkeley, 2007.

## **PLENARY TALK**

“Scheduling in Highly Uncertain Environments,” MISTA (Multidisciplinary International Scheduling: Theory and Applications) Conference, Paris, August, 2007.

## **CONFERENCE PAPERS AND TALKS**

“Resource Allocation in Grid Computing,” with G. Koole, INFORMS Annual Meeting, Seattle, October 2007, and INFORMS Applied Probability Society Meeting, Eindhoven, The Netherlands, July 2007.

“Staffing a Helpdesk with Two Queues Connected by Abandonment,” with Y. Kim, V. Mehrotra, and R. Wolf, INFORMS Annual Meeting, Pittsburgh, October 2006.

“Decisions for Heterogeneous Workers,” with H.-S. Ahn and J.G. Shanthikumar, INFORMS Applied Probability Society Meeting, Ottawa, July, 2005, and INFORMS Annual Meeting, San Francisco, October 2005.

“Hiring and Firing Decisions for Heterogeneous Workers,” with H.-S. Ahn and J.G. Shanthikumar, Invited Talk for the Workshop in Honor of Arie Hordijk’s 65<sup>th</sup> Birthday, Leiden, The Netherlands, March 2005.

“Dynamic Load Balancing with Flexible Workers,” with H.-S. Ahn, INFORMS Applied Probability Society Meeting, Beijing, June 2004, and INFORMS Annual Meeting, Atlanta, October 2003.

“The Effect of Service Time Variability on Maximum Queue Lengths in Batch M/G/1 Queues,” with M. Nuyens and G. Koole, Probability Seminar, UC Berkeley, May, 2004 and Northwestern University, March, 2004, and INFORMS meeting, Denver, October 2004.

“Dynamic Load Balancing with Flexible Workers,” with H.-S. Ahn and G. Brouns, invited talk for the Pacific Region Intercollegiate Symposium for the Management Sciences (PRISMS) (under the auspices of INFORMS), University of California, Berkeley, March 2003.

“Scheduling in Multiclass Networks with Deterministic Service Times,” INFORMS meeting, San Jose, November 2002.

“Characterizing Losses During Busy Periods in Finite Buffer Systems,” with E. Peköz and C. H. Xia, Madrid Conference on Queueing Theory, Madrid, Spain, July 2002.

“The Distribution of Losses in Finite Buffer Systems,” Math Department, Santa Clara University, Santa Clara, California, April 2002.

“Analysis and Control of Losses in Telecommunication Systems,” IEOR Department, University of California, Berkeley, October 2001.

“Optimal Transmission Policies for Noisy Channels,” with G. Koole and Z. Liu, INFORMS Applied Probability Society meeting, Ulm, Germany, July 1999.

“Optimal Parallel Processing of Random Task Graphs,” with Z. Liu, INFORMS meeting, Seattle, October 1998.

“Multi-Class Production Systems with Setup Times,” with J. G. Shanthikumar, invited talk, Stanford Graduate School of Business, September 1998; IOE Department, University of Michigan, December 1998; Leavey School of Business, Santa Clara University, February 1999.

“Optimal Parallel Processing of Random Task Graphs,” with Z. Liu, refereed conference paper, Proceedings of the Sixth International Workshop on Project Management and Scheduling, July, 1998.

“Scheduling Multicast Switches,” invited talk, INFORMS meeting, Montreal, April 1998.

“The Impact of Cell Dropping Policies in ATM Networks,” with Z. Liu, invited talk, Applied Probability Group Meeting of INFORMS, Cambridge, MA, June 1997.

“Scheduling of an Input-Queued Switch to Achieve Maximal Throughput,” with E. Altman and Z. Liu, invited talk, INFORMS meeting, San Diego, CA, May 1997.

“Multi-Class Production Systems,” invited talk, INRIA, France, May 1996.

“Optimal Load Balancing on Distributed Homogeneous Unreliable Processors,” with Z. Liu, invited talk, INFORMS meeting, New Orleans, LA, October 1995.

“Optimal Load Balancing on Distributed Homogeneous Unreliable Processors,” with Z. Liu, invited talk, Applied Probability Group Meeting of INFORMS, Atlanta, GA, June 1995.

“Coupling Characterizations of Stochastic Orders and Tandem Queues,” with D. Cheng, invited talk, Applied Probability Workshop in Oberwolfach, Germany, December 1994.

“Multi-Class Production Systems with Setup Times,” with J. G. Shanthikumar, invited talk, Applied Probability Workshop at Leiden University, Leiden, The Netherlands, December 1994.

“The Optimality of LEPT in Parallel Machine Scheduling,” with C.-S. Chang, invited talk, Applied Probability Group Meeting of ORSA/TIMS, Paris, France, June 1993.

“Coupled Constructions to Show Stochastic Optimality,” invited talk, EURO/TIMS Meeting, Helsinki, Finland, June 1992.

“Coupled Constructions to Show Stochastic Optimality,” invited lecture at the Institute of Applied Mathematics and Computer Science, Leiden University, the Netherlands, June 1992 and the Department of Industrial Engineering and Operations Research, UC Berkeley, August 1992.

“Optimality of the FCFS Discipline in Queueing Networks,” invited talk, joint work with J. G. Shanthikumar, ORSA/TIMS Meeting, Anaheim, April 1991.

“Multiprocessor Scheduling with Shared Memory,” ORSA/TIMS Meeting, Nashville, November 1991.

“Scheduling on Multiple Processors with Shared Memory,” ORSA/TIMS Special Interest Meeting in Applied Probability, Monterey, June 1991.

“Multiprocessor Scheduling and the Sequential Assignment Problem,” AMS/IMS/SIAM Workshop on Sequential Search and Selection, Amherst, MA, July 1990.

“Scheduling Jobs on Heterogeneous Processors,” invited lecture at the Haas School of Business, UC Berkeley, April 18, 1990; the Naval Postgraduate School, Monterey, May 1990; the Department of Industrial Engineering and Operations Research, UC Berkeley, September 1990; and the Columbia University OR/MS Colloquium, December 1990.

“Sequencing to Stochastically Maximize the Number of Successful Job Completions,” invited talk, ORSA/TIMS Meeting, New York, April 1989.

“Scheduling in G/G/1 Multiclass Queues to Stochastically Maximize Successful Departures,” joint work with J. G. Shanthikumar, ORSA/TIMS Meeting, Vancouver, October 1989.

“Multiprocessor Simulation of Complex Manufacturing Systems,” invited talk, ORSA/TIMS Meeting, Denver, April 1988.

“Distributed Simulation of Manufacturing Systems,” joint work with J. C. Walrand, Meeting of the Applied Probability Group of ORSA/TIMS, Chapel Hill, North Carolina, June 1988.

“Distributed Simulation for IC Fabrication,” ORSA/TIMS Meeting, Washington, November 1988.

“Distributed Simulation,” Proceedings of the 1988 Systems Engineering Delegation, China, 1988.

“Scheduling Jobs on Heterogeneous Processors,” Proceedings of the 1988 Systems Engineering Delegation, China, 1988.

“Distributed Simulation,” Proceedings of the 1988 International Conference on Systems Science and Engineering, Beijing, China, 1988.

“Machine Scheduling of Multi-Priority Jobs with Random Deadlines,” invited talk, ORSA/TIMS Meeting, Miami, 1986.

“Problems in Stochastic Sequential Allocation,” ORSA/TIMS Meeting, Atlanta, 1985.

## **AWARDS AND HONORS**

2004 and 2005 IBM Faculty Award (\$25,000 each year)

Breetwor Fellowship (Leavey School of Business, Santa Clara University, 2000-2002, \$10,000)

Dean's Award for Research (Leavey School of Business, Santa Clara University, 2002, 2001, 1998, 1997, 1990).

Dean's Award for Service (Leavey School of Business, Santa Clara University, 2000)

1998 *Operations Research* Meritorious Service Award.

Leavey Grant for Research (Santa Clara University, 1999, 1994, and 1989).

Winkler and Lund Award for Faculty Service (Santa Clara University, 1993).

Leavey Grant for Curriculum Development (Santa Clara University, 1992, 1993).

Irvine Foundation Curriculum Development Grant (Santa Clara University, 1992).

Arthur Vining Davis Junior Faculty Fellowship for Research (Santa Clara University, 1990).

University Proposal Development Grant (Santa Clara University, 1989).

GE Foundation Forgivable Loan (UC Berkeley, 1984-1986).

University Fellowship (UC Berkeley, 1982-84).

Distinguished Teaching Assistant Award (UC Berkeley, 1985).

Bell Labs One Year on Campus Fellowship Program (1981-82).

Southern Club Scholarship - Outstanding Woman (Carnegie Mellon University, 1978-80).

## PROFESSIONAL SERVICE

Associate Editor for *Queueing Systems: Theory and Applications* (2000 to present).

Founding Associate Editor for *Journal of Scheduling* (1997 to present).

Associate Editor for *Operations Research* (1995 to 2006).

Associate Editor for *Operations Research Letters* (1999 to 2006).

Search Committee, Founding Editor-in-Chief, *Applied Probability and Operations Research* (2007).

National Science Foundation Review Panel (2006, 1998).

Program Committee Member, International Conference on Performance Evaluation Methodologies and Tools, Nantes, France (2007) and Pisa, Italy (2006).

Program Committee Member, POMS Service College Conference, Monterey, CA (2006).

Program Committee Member, Applied Probability Meeting in Beijing, China (2004).

Program Committee Member, Madrid Conference on Queueing Theory (2002).

Member of the Council for the Applied Probability Society of INFORMS (2000-2002).

Chair of the Applied Probability Society of INFORMS (1998 to 2000).

Associate Editor for *Management Science* (1995-1999).

Chair-Elect/Vice Chair of the Applied Probability Section of INFORMS (1996 to 1998).

Program Committee Member, Applied Probability Meeting in Ulm, Germany (1999).

Member of the Council for the Applied Probability College/Technical Section of ORSA/TIMS (1991-1993).

Nicholson Prize (for best student paper in operations research) Selection Committee (1993 and 1994).

Organizer of the Applied Probability Cluster of the EURO/TIMS meeting in Helsinki Finland, 1992.

Arrangements Chairperson for the San Francisco ORSA/TIMS meeting, 1992.

Session organizer for numerous INFORMS, ORSA/TIMS, and APS meetings.

Reviewer for: NSF panels, *Advances in Applied Probability*, *Annals of the Institute of Statistical Mathematics*, *Discrete Event Dynamical Systems*, *European Journal of Operational Research*, *IIE Transactions*, *IIE Transactions on Operations Engineering*, *IEEE Transactions on Automatic Control*, *IEEE Transactions on Communications*, *IEEE Transactions on Software Engineering*, *Journal of Applied Probability*, *Journal of the Institute of Industrial Engineers*, *Management Science*, *Mathematics of Operations Research*, *Operations Research*, *Naval Research Logistics*, *Operations Research Letters*, *Probability in the Engineering and Informational Sciences*, *Queueing Systems*, *SIAM Journal on Computing*, *Stochastic Models*, *Stochastic Processes and their Applications*.

## **UNIVERSITY SERVICE** (partial list)

### **University of California, Berkeley:**

Chair, Faculty of the College of Engineering, August 2007 – present.

ORMS Major Faculty Advisor, 2004 – present.

IEOR Department Seminar co-coordinator, 2005-2006.

Advisory Board Member, SSME (Services: Science, Engineering and Management) Program for the College of Engineering, the Information School, and the Haas School of Business, 2003 – present.

Helped develop curriculum for a Master's level certificate.

Search Committee Member, IEOR faculty position, 2005-2006.

Search Committee Member, Director of the Services Science Program, 2005-2006.

Committee to Develop a new Operations Research/ Management Science major in the College of Letters and Sciences – Chair, 2003-2004.

Chair and Member of various ad hoc tenure and promotion committees.

### **Santa Clara University:**

University Research Committee, 1999-2002 (Chair, 2001-2002)

Steering Committee for the Markkula Center for Applied Ethics, 1996-2003.

Search Committee, Director, Markkula Center for Applied Ethics, 1999-2000.

Leavey School Rank and Tenure Committee - Chair, 1999-2000.

Leavey School Rank and Tenure Committee, 1995-1996, 1997-1998.

University Budget Advisory Committee, 1995-1998.

Leavey School Undergraduate Committee, 1997.

University Grievance Committee, 1995-1996.

University Faculty Affairs Board, 1995-1996.

University Salary Equity Task Force, 1995.

Leavey School MBA Policy Committee, 1995.

Women Faculty Group Steering Committee - Co-chair, 1994-1995.

Leavey School Teaching Evaluation Task Force, 1994.

University Special Library Task Force, 1992-1993.

University Faculty Senate, 1991-1992.

Leavey Grant Review Committee, 1992.

Leavey School Calculus Review Committee - Chair, 1991.

Leavey School Undergraduate Curriculum Task Force, 1989-1991.