

Robert W. Day

Associate Professor, Operations and Information Management (tenured 2011)
Co-Director, Management and Engineering for Manufacturing
School of Business
University of Connecticut
2100 Hillside Road, U-1041
Storrs, CT 06269-1041
Bob.Day@business.uconn.edu
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Education:

August 2004 *Doctorate of Philosophy*, University of Maryland, College Park,
Applied Mathematics and Scientific Computation, concentration in
Operations Research, *R.H. Smith School of Business*, Dissertation:
“Expressing Preferences with Price-Vector Agents in Combinatorial Auctions.”

May 1999 *Bachelor of Arts*, Vanderbilt University, Nashville, TN
Mathematics and Economics, Cum Laude

Awards:

Best Paper Award, 2017, awarded to the most outstanding research paper in the School of Business, University of Connecticut, for Schneider and Day 2016.

Service Award, 2016, awarded in recognition of outstanding service to the School of Business, University of Connecticut.

Innovation in Teaching Award, 2013, awarded for innovative course development in School of Business, University of Connecticut, for OPIM 3801: Principles of Project Management.

INFORMS Computing Society Prize, 2008, awarded annually for the best English language paper or group of related papers in the Operations Research/Computer Science interface, in recognition of the scholarly and applied contributions of Day and Raghavan 2007.

Best Paper Award, 2007, awarded to the most outstanding research paper in the School of Business, University of Connecticut, for Day and Raghavan 2007.

Dantzig Dissertation Award, 2005, awarded by INFORMS for the best dissertation in Operations Research and the Management Sciences that is innovative and relevant to practice.

Research:

Research Interests: Optimization and Auction Theory, Matching and Allocation Problems, Spectrum License Auctions, Airport Landing-Slot Auctions, Hospital Management OR, Grid Computing, Network Optimization, Game Theory and Operations Research.

Research Papers:

“Target-Adjusted Utility Functions and Expected-Utility Paradoxes,” (w/ M. Schneider), *Management Science*, 2016, published online in Articles in Advance 2 Dec 2016.

“Risk Aversion and Loss Aversion in Core-Selecting Auctions,” (w/ M. Schneider and R. Garfinkel), *Decision Support Systems* **79**, November 2015, pp. 161-170.

“Compact bid languages and core-pricing in large multi-item auctions” (w/ A. Goetzendorff, M. Bichler, and P. Shabalin), *Management Science*, **61**(7), July 2015, pp. 1684–1703.

“Integrated Block Sharing: A Win–Win Strategy for Hospitals and Surgeons,” (w/ R. Garfinkel and S. Thompson), *Manufacturing and Service Operations Mgmt*, **14**(4), Fall 2012, pp. 567-583.

“Quadratic Core-Selecting Payment Rules for Combinatorial Auctions,” (w/ P. Cramton), *Operations Research*, **60**(3), May 2012, pp. 588-603.

“A Clock-and-Offer Auction Market for Grid Resources with Uncertain CPU Requirements,” (w/ R. Bapna, S. Das, R. Garfinkel, and J. Stallaert), *INFORMS Journal on Computing*, **24**(3), Fall 2011, pp. 630-647.

“Improving Patient Flow in a Hospital Through Dynamic Allocation of Cardiac Diagnostic Testing Time Slots,” (w/ M. Dean, R. Garfinkel and S. Thompson), *Decision Support Systems*, **49**(4), November 2010, pp. 463-473.

“Matrix Bidding in Combinatorial Auctions,” (w/ S. Raghavan), *Operations Research* **57**(4), July 2009, pp. 916-933.

“Core-Selecting Package Auctions,” (w/ P. Milgrom), *International Journal of Game Theory* **36**(3), March 2008, pp. 393-407.

“A Combinatorial Procurement Auction Featuring Bundle Price Revelation without Free Riding,” (w/ S. Raghavan) *Decision Support Systems* **44**(3), February 2008, pp. 621-640.

“Fair Payments for Efficient Allocations in Public Sector Combinatorial Auctions,” (w/ S. Raghavan) *Management Science* **53**(9), September 2007, pp. 1389-1406.

“The Landscape of Electronic Market Design,” (w/ G. Anandalingam and S. Raghavan) *Management Science* **51**(3), March 2005, pp. 316-327.

Papers under review:

“Optimization-based Mechanisms for the Course Allocation Problem” (w/ H. Atef Yekta)
Under second round review at *IJOC*.

Papers in Preparation:

“Measuring Consumer Surplus in Online Auctions and Improving Market Performance via Seek-and-Protect Agents,” (w/ R. Bapna and S. Rice) in preparation for first round at POM.

“The Division of Surplus in Combinatorial Exchanges,” in preparation for second round at *EJOR*.

Current Research Projects:

“Consistency vs. Flexibility in Multi-Commodity Networks,” (w/ D. Bergman and M. Emadikhiav)

“On Finding Stable and Efficient solutions for the Team Formation Problem,” (w/ H. Atef Yekta and D. Bergman)

“Flexible Operating Room Suite Scheduling,” (w/ R. Garfinkel and S. Thompson)

“Auctions, Duality and the Core.”

Book Chapters:

“Combinatorial Auctions,” Section 16.7, pp. 1222-1231 in *The Handbook of Discrete and Combinatorial Mathematics*, D. Shier (Ed.) (2017). CRC Press. Note: Original book chapter commissioned specifically for this work.

“Quadratic core-selecting payment rules for combinatorial auctions,” Chapter 10 in *The Handbook of Spectrum Auction Design*, Bichler, M. and J. Goeree (Eds.) (2017). Springer. Note: reprint of Day and Cramton 2012.

“Core-Selecting Auctions,” Chapter 11 in *The Handbook of Spectrum Auction Design*, Bichler, M. and J. Goeree (Eds.) (2017). Springer. Note: major revision of Day and Milgrom 2008.

“Optimal Incentives in Core-Selecting Auctions,” Chapter 12 in *The Handbook of Market Design*, Vulkan, N., Roth, A. E., & Neeman, Z. (Eds.) (2013). Oxford University Press. Note: major revision of Day and Milgrom 2008.

Conference Papers:

“Assignment Preferences and Combinatorial Auctions,” (w/ S. Raghavan) *12th INFORMS Computing Society Conference*, refereed conference paper, 2011.

“A Robust Combinatorial Auction Mechanism against Shill Bidding,” Matsuo, T., T. Ito, R. Day, and T. Shintani, *Automated Agents and Multi-Agent Systems*, refereed conference paper, 2006.

“Vehicle Networks: Achieving Regular Formation,” (w/ Glavaski et. al), *Proceedings of the American Control Conference*, Denver, Colorado June 4-6, 2003.

Conferences and Presentations:

Duke University, CS/ECON Seminar Series, December 12, 2014. Campus visit and research presentation.

Yale University, Microeconomic Theory Seminar, March 27, 2013. Campus visit and research presentation.

Workshop on Information Systems Economics (WISE), December 16, 2012. Speaker and poster presentation.

Rutgers University, Management Science & Information Systems Department, November 12, 2012. Campus visit and research presentation.

Technische Universität München (TUM or Technical University of Munich), Department of Informatics. September 11, 2012. Visiting researcher and research presentation given.

INFORMS Healthcare, June 20-22, 2011. Invited Speaker.

Workshop on Information Systems Economics (WISE), December 11-12, 2010. Speaker and poster presentation.

EURO XXIV 2009, Conference Bonn Germany, July 5-8, 2009. Invited Speaker.

Michael Rothkopf Memorial Conference, Penn State University, June 2, 2009. Invited Speaker.

Los Alamos National Laboratories, Center for Nonlinear Studies. July 1, 2008. Center visit and research presentation.

Ninth INFORMS Telecommunications Conference, University of Maryland, March 27-29, 2008. Invited Speaker, Session Chair.

The 18th International Conference on Game Theory, Stony Brook University, July 9-13, 2007. Research presented by co-author, Paul Milgrom.

Euro XXI 2006, Congress in Iceland, July 2-5, 2006. Invited Speaker.

North American Summer Meeting of the Econometric Society, June 22-25, 2006. Invited Speaker.

INFORMS Practice Conference, April 30-May 2, 2006. Invited Participant.

Harvard University, Econ/CS Group, March 11, 2005. Campus visit and research presentation.

NEXTOR/FAA, Mock Auction, Congestion Management Project/Strategic Simulation, February 24-25, 2005. Team Facilitator.

Computing and Markets, Schloss Dagstuhl International Conference and Research Center for Computer Science, January 3-7, 2005. Invited Speaker.

DIMACS Workshop for Computational Issues in Auction Design, October 7-8, 2004. Invited Speaker.

NEXTOR Workshop: *Government, the Airline Industry and the Flying Public: a New Way of Doing Business*, June 21-23, 2004. Research presented by co-author, S. Raghavan.

CORS/INFORMS Joint International Meeting, May 16-19, 2004. Invited Speaker.

INFORMS Annual Meeting, Invited Speaker: 2017, 2016, 2015, 2014, 2013, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002; Session Chair 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2005.

Teaching:

Teaching Interests: Quantitative Methods for Graduate and Undergraduate students, Mathematical Programming and its Applications, Operations Management, Project Management, Statistical Quality Control, Game Theory and auctions, development of Computer Science, Engineering, and Applied Mathematics curriculum for interdisciplinary/business students.

Teaching Experience:

Associate/Assistant Professor, Operations and Information Management, U. of Connecticut:

2012- OPIM 3801: Principles of Project Management, for undergraduate students, emphasis on
2017 quantitative skills and proficiency in Microsoft Excel and Project.

2013 OPIM 5110: Operations Management for the full-time MBA program, emphasis on
quantitative analysis and business decision making.

2009- BADM 5894: Project Management Module for the full-time MBA program, emphasis on
2010 planning, closing, scope management and time management.

2004- OPIM 3104: Operations Management for undergraduate business students, emphasis on
2017 quantitative skills and proficiency in software applications.

2009 OPIM 6202: PhD Seminar in Operations Research and Auction Applications, Spring 2009.

2008 OPIM 252: Statistical Quality Control for the Management and Engineering for Manufacturing (MEM) program.

Teaching Assistant, University of Maryland:

- 2003 *Graduate Assistant*, guest lecturer, grader for a doctoral course on Integer Programming.
- 2001 *Instructor*, summer course in Linear Algebra.
- 2001 *Instructor*, Probability and Geometry for undergraduate Education majors.
- 1999-2002 *Teaching Assistant*, Linear Algebra I, Calculus I and II, leader of discussion sections with regular office hours, writer and grader of quizzes, grader of exams.
- 1999 *Participant*, Graduate Teaching Seminar, classroom auditing and interactive evaluation, teaching workshop.

Highlighted Service Activities:

- 2013- *Co-Director, Management and Engineering for Manufacturing (MEM)*, working with the Engineering Co-Director, administered the MEM undergraduate major program:

Teaching assignments and curriculum coordination and review;
Curriculum governance, including serving on both BUSN and ENGR undergrad program committees (Undergraduate Programs and Students Committee; Course and Curriculum);
Work with UConn registrar of classes and senate general education & oversight committee;
Administration of interdisciplinary Engineering Management Minors;
Founded partnership with Civil and Environmental Engineering to develop Construction Management Minor;
Continuous improvement and ABET review process;
Open House, and ENGR 1000 level recruitment processes;
Representative to ABET accreditation process, program accredited in 2015;
Representative to AACSB accreditation process, school accredited in 2016;
Hiring and management of administrative support staff;
Outreach and site visits to regional manufacturers;
KUALI accounts approval process;
Student advising using School of Engineering platforms.

- 2015- *UConn Entrepreneurship and Innovation Steering Committee*, working with representatives from around the University, met monthly to discuss outreach and programmatic offerings related to interdisciplinary work in entrepreneurship and innovation.

- 2014- *University of Connecticut Research Advisory Council (RAC) representative*, working with representatives from all UConn schools, provides advisory information to the Office of the Vice President for Research, as well as administering the Research Excellence Program; co-chaired (with Adrienne Macki of the School of Fine Arts) the 2015 Research Excellence Program Group on “Artists, Creative Scholarship, Humanities and Engagement,” compiling reviews and making funding recommendations.

2011- *INFORMS Annual Meeting, Chair of the Auctions Cluster*, (2011, co-chair with M. Bichler, other years individually), organizing over 40 talks each year and a research discussion panel. Currently working with INFORMS leadership to form a research section on Auctions and Market Design, a formally chartered research division of INFORMS.

Consulting Projects:

Auction Design Consulting:

Working with Market Design, Inc., I issued the following reports to Ofcom, the independent regulator and competition authority for UK communications industries, commenting on spectrum auction proposals and recommending improved designs:

“A Review of the United Kingdom’s 4G Spectrum Auction,” Peter Cramton, Robert Day, and Pacharasut Sujarittanonta, March 2013.

“Auction Design for the 800 MHz Spectrum and Other Bands,” Peter Cramton and Robert W. Day, May 2010.

“Further Comments on Auction Design for the 800 MHz Spectrum and Other Bands,” Peter Cramton and Robert W. Day, May 2010.

Designed auction rules and developed combinatorial auction optimization software used for L-band, 10-40GHz, and the 800MHz and 2.6GHz (4G) spectrum license auctions by Ofcom. Total revenues exceeded £2.37 billion for the 4G auction.

Designed and developed combinatorial auction optimization software used in the 2009 Federal Aviation Administration (FAA) bidder seminar, preliminary activities for an auction of take-off/landing slots to control airport congestion.

Designed and developed combinatorial auction optimization software for potential use in the Federal Communications Commission (FCC) AWS3 auction.

Healthcare Management Consulting:

Designed and implemented a block-scheduling algorithm for Henrico’s Doctors’ Hospital, a subsidiary of Hospital Corporation of America (HCA), allocating recurring access patterns to surgeons involved in non-urgent surgical cases, and resulting in revenue increases of \$1.2 million in the first year.

Consultant to Comprisma, designing risk-pooling markets in the health insurance industry.

Other Honors, Awards, and Grants:

Ackerman Scholarship, 2015-2017, 2008-2010, recognizes significant and continuing all around academic productivity among the faculty of the School of Business, University of Connecticut.

MBA Teacher of the Year (OPIM), 2013-2014, award voted on by full-time MBA students.

Best Paper Award, Second Place, 2012, awarded to the most outstanding research paper in the School of Business, University of Connecticut, for Day, Garfinkel, and Thompson 2012.

Best Paper Award, Honorable Mention, 2012, awarded to the most outstanding research paper in the School of Business, University of Connecticut, for Day and Cramton 2012.

Finalist: EURO Excellence in Practice Award, 2009, awarded by EURO: the Association of European Operational Research Societies, recognizing outstanding accomplishments in the practice of Operational Research.

INFORMS Young Researcher Roundtable Selected Participant, April 30-May 2, 2006.

Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE) Award. Spring 2004. National Science Foundation Dissertation Grant, University of Maryland.

Research Assistant, 2002-2003, National Science Foundation Grant: "Rapid Response Electronic Markets for Time-Sensitive Goods." Presentations given: "Matrix Bidding in Combinatorial Auctions," and "Time-Sensitive Goods and the Substitutes Property."

INFORMS Doctoral Colloquium Selected Participant, October 17-18, 2003.

Spotlight on Graduate Research Award, February 20, 2003, Department of Mathematics, University of Maryland.

Mathematical Modeling in Industry - A Workshop for Graduate Students, Selected Participant, May 26- June 3, 2002, The Institute for Mathematics and its Application, University of Minnesota.

Excellence in Teaching Award for Graduate Assistants Nominee, December 19, 2001, Department of Mathematics, University of Maryland, College Park. Nominated by Students.

Editorial and Review Service:

National Science Foundation Proposal Review Panel, Manufacturing and Service Enterprise Systems, 2015.

National Science Foundation Proposal Review Panel, Manufacturing and Service Enterprise Systems, 2006.

Assistant to the Guest Editors for the Special Issue on Electronic Markets, *Management Science* **51**(3), March 2005.

Reviewer for:

American Economic Review, Computers and Operations Research, Decision Analysis, Decision Sciences Journal, Decision Support Systems, Encyclopedia of Operations Research and Management Science, European Journal of Operations Research, Games and Economic Behavior, Information Systems Research, INFORMS Journal on Computing, INFORMS Telecom Conference, Interfaces, International Journal of Game Theory, International Journal of Production Economics, Journal of Artificial Intelligence Research, Journal of Economic Behavior & Organization, Journal of Economic Theory, Management Science, Manufacturing and Service Operations Management, MSOM Conference, Operations Research, Networks, Production and Operations Management, Theoretical Economics, Transportation Science.

Other Departmental and School of Business Service:

(UConn OPIM department) PhD first and second year program development, 2012-2013. PhD Program Website Redesign, 2008-2009. Certificate in MIS program committee, 2007-2008. Departmental Seminar coordinator, 2007-2008. PhD committee, 2007-2009. PhD recruiting, 2005-2008. Faculty recruiting, 2005-2007.

(School of Business) CIBER Faculty Advisory Committee, 2014-2017, Full-time MBA Task Force, 2013. Masters Programming Committee 2011-2012. Commencement Committee, 2009-2010, 2010-2011, 2012-2013, 2015-2016. MBA ACT Program committee, 2009-2010, 2012-2013.

Professional Memberships: INFORMS, The Econometric Society