CURRICULUM VITA

Richard H. Stockbridge

OFFICE

Department of Mathematical Sciences
University of Wisconsin Milwaukee
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EDUCATION

Areas of Specialization: Applied Probability, Stochastic Control Theory, Optimal Stopping

Degrees:

B.S., 1976, St. Lawrence University, Canton, New York,
Honors: Phi Beta Kappa, Omicron Delta Kappa, Pi Mu Epsilon.

M.A., 1984, University of Wisconsin, Madison, Wisconsin.

Ph.D., 1987, University of Wisconsin, Madison, Wisconsin.
Advisor: Thomas G. Kurtz.

PROFESSIONAL EXPERIENCE

Professor, Department of Mathematical Sciences, University of Wisconsin Milwaukee, Milwaukee, Wisconsin 2002 – present.

Associate Professor, Department of Mathematical Sciences, University of Wisconsin Milwaukee, Milwaukee, Wisconsin 2000 – 2002.

Professor, Department of Statistics, University of Kentucky, Lexington, Kentucky 2001 – 2002 (on leave).

Associate Professor, Department of Statistics, University of Kentucky, Lexington, Kentucky 1993 – 2001 (on leave 2000-2001).

Assistant Professor, Department of Statistics, University of Kentucky, Lexington, Kentucky 1989 – 93.

Assistant Professor, Department of Mathematics and Statistics, Case Western Reserve University, Cleveland, Ohio, 1987 – 89 (on leave 1988-89).

Teacher, Wyvern Comprehensive School, Weston-super-Mare, England, 1982 – 83.

Peace Corps Volunteer (Teacher), Our Lady of Sorrows School, Hluti, Swaziland, 1976 – 80.

SHORT-TERM VISITING POSITIONS

Visiting Scholar, School of Mathematical and Computer Sciences, Heriot Watt University, March - August 2016.

Sabbaticant Professor, Department of Mathematics, University of Botswana, July 2008 - January 2009.

Visiting Fellow, Department of Mathematical Sciences, Bath University, January - July 1997.

Visiting Assistant Professor, Department of Mathematics, University of Kentucky, Lexington, Kentucky, 1988 – 89.

ADMINISTRATIVE EXPERIENCE

Chair, Department of Mathematical Sciences, 2009 – 2013.

Graduate Program Coordinator, Department of Mathematical Sciences, University of Wisconsin Milwaukee, 2005–2008.

Associate Chair, Department of Mathematical Sciences, University of Wisconsin Milwaukee, 2001–2005.

Director of Undergraduate Studies, Department of Statistics, University of Kentucky, 1997–2000.

CONFERENCE ORGANIZATION

Co-organizer with S.N. Ethier and J. Feng, "Markov Processes and Related Fields," University of Wisconsin–Madison, July 2006.

Co-organizer with Z. Zheng, "Stochastic Control and Numerics," University of Wisconsin Milwaukee, September 2005.

Co-organizer with A. Stromberg and C. Wood, "Nonlinear Statistical Models: Implementation and Applications," University of Kentucky, October 1999.

Co-organizer with K. Helmes, "Stochastic Control with Partial Observations and Financial Models of Incomplete Markets," University of Kentucky, October 1998.

NOMINATION

Program Chair of the Society for Industrial and Applied Mathematics (SIAM) Special Interest Activity Group (SIAG) on Control and Systems Theory (CST). The position is responsible for forming the program committee for the (biannual) SIAM Conference on Control and Its Applications in July 2019. The election will be held in Fall 2017.

RESEARCH GRANT SUPPORT

Principal Investigator, "Collaborations in Optimal Stopping and Control of Stochastic Processes," Simons Foundation, 2012-2017, $35,000.

Principal Investigator (with B. Wade), "Analysis, Control and Stopping of Singular Stochastic Processes," National Security Agency, 2009-2011, H98230-09-1-0002, $106,000.

Principal Investigator (with B. Wade), "Singular Control of Stochastic Processes: Probabilistic Foundations and Numerical Methods," National Security Agency, 2004-2007, H98230-05-1-0062, $77,000.

Principal Investigator, "The Linear Programming Approach to Optimal Stochastic Control," Applied Mathematics Program, National Science Foundation, 1998-2002, DMS-9803490, $102,000.

Co-Principal Investigator (with K. Helmes), "Existence and Computation of Optimal Markov Controls for Adaptive Control Problems," Applied Mathematics Program, National Science Foundation, 1994-1997, DMS-9404990, $60,000.

Supported under EPSRC grant GR/L58415, Engineering and Physical Sciences Research Council, United Kingdom, L.C.G. Rogers, PI, May-October 1997, BPS 8,000.

Supported by a University of Bath Visiting Fellowship, January-July 1997, BPS 3,000.

Co-Principal Investigator (with A. Heinricher), "Optimal Control for Stochastic Wear Models," Probability and Statistics Program, National Science Foundation, 1990-1992, DMS-9006674, $68,000.

CONFERENCE GRANT SUPPORT

Principal Investigator, "Conference on Markov Processes and Related Fields," grant number ARO W911NF-06-1-0150, Army Research Office, May 2006 - May 2007, $10,000.

Principal Investigator, "Conference on Markov Processes and Related Fields," grant number N000140610857, Office of Naval Research, June 2006 - June 2007, $10,000.

Principal Investigator, "Conference on Markov Processes and Related Fields," grant number NSA H98230-06-1-0139, National Security Agency, April 2006 - April 2007, $15,000.

Principal Investigator, "Conference on Markov Processes and Related Fields," grant number DMS 0615276, National Science Foundation, July 2006 - June 2007, $11,000.

Principal Investigator (with Z. Zheng), "Conference on Stochastic Control and Numerics," National Security Agency, 2005-2006, H98230-05-1-0274, $15,000.

Principal Investigator, "Conference on Stochastic Control and Numerics," (Z. Zheng, co-PI), grant number DMS 0531452, National Science Foundation, August 2005 - August 2006, $12,000.

co-Principal Investigator (with C. Wood, A. Stromberg), "Conference on Nonlinear Statistical Models: Implementation and Application," Probability and Statistics Program, National Science Foundation, 1999-2000, DMS-9980229, $4,000.

Principal Investigator, "Conference on Stochastic Control with Partial Observations and Financial Models of Incomplete Markets," Applied Mathematics Program, National Science Foundation, 1998-1999, DMS-9813557, $3,800.

co-Principal Investigator (with K. Helmes), "Conference on Stochastic Control with Partial Observations and Financial Models of Incomplete Markets," Institute for Mathematics and Its Applications, University of Minnesota, 1998, $4,000.

FELLOWSHIP GRANT SUPPORT

Principal Investigator (with C. Guilbault, Y.M. Zou), "Graduate Assistance in Areas of National Need Fellowship Program," grant number P200A120082, U.S. Department of Education Office of Postsecondary Education, August 2012 - August 2015, $399,798.

Principal Investigator (with C. Guilbault), "Graduate Assistance in Areas of National Need Fellowship Program," grant number P200A100084, U.S. Department of Education Office of Postsecondary Education, August 2010 - August 2013, $522,624.

co-Principal Investigator (with C. Guilbault), "Graduate Assistance in Areas of National Need Fellowship Program," grant number P200A090021, U.S. Department of Education Office of Postsecondary Education, August 2009 - August 2012, $653,280.

Principal Investigator, "Graduate Assistance in Areas of National Need Fellowship Program," grant number P200A060016, U.S. Department of Education Office of Postsecondary Education, August 2006 - August 2010, $510,908.

EDUCATIONAL GRANT SUPPORT

Senior Personnel, "Milwaukee Mathematics Partnership," (DeAnn Huinker PI, Kevin McLeod co-PI), grant number NSF-EHR-0314898, National Science Foundation, September 2003-2009, $20,000,000.

Senior Personnel, "Mathematics Fellowship for Middle Grade Teachers," (Henry Kranendonk PI, Kevin McLeod co-PI, DeAnn Huinker co-PI), grant number 05-3619-MSP, Wisconsin Department of Public Instruction, February 2005 - August 2006, $345,895.

Consultant, "Content Focused Coaching and Leadership," (DeAnn Huinker PI, Janis Freckmann co-PI) funded by *Wisconsin Eisenhower Professional Development Program* January 2004 - January 2005, $79,000.

Consultant, "Mathematics Mentoring and Leadership Project," (DeAnn Huinker PI, Janis Freckmann co-PI)) funded by *Wisconsin Eisenhower Professional Development Program* October 2002 - October 2003.

LIST OF PUBLICATIONS

[**1**] RH Stockbridge, Time-Average Control of Martingale Problems: The Hamilton-Jacobi-Bellman Equation, *Stochastics and Stochastics Reports,* **27** (1989), 249–260.

[**2**] RH Stockbridge, Time-Average Control of Martingale Problems: Existence of a Stationary Solution, *Annals of Probability,* **18** (1990), 190–205.

[**3**] RH Stockbridge, Time-Average Control of Martingale Problems: A Linear Programming Formulation, *Annals of Probability,* **18** (1990), 206–217.

[**4**] RH Stockbridge, A Martingale Approach to the Slow Server Problem, *Journal of Applied Probability,* **28** (1991), 480–486.

[**5**] AC Heinricher and RH Stockbridge, Optimal Control of the Running Max, *SIAM Journal of Control and Optimization,* **29** (1991), 936–953.

[**6**] AC Heinricher and RH Stockbridge, An Infinite-dimensional LP Solution to Control of a Continuous, Monotone Process, *Applied Stochastic Analysis*, I. Karatzas and D. Ocone, eds., Lecture Notes on Control and Information Sciences, **177** (1992), Springer-Verlag, 134–143.

[**7**] AC Heinricher and RH Stockbridge, Optimal Control and Replacement with State-dependent Failure Rate, in *Stochastic Theory and Adaptive Control*, T. Duncan and B. Pasik-Duncan, ed., Lecture Notes in Control and Information Science, **184** (1992), Springer-Verlag, 240-247.

[**8**] AC Heinricher and RH Stockbridge, Optimal Control and Replacement with State-dependent Failure Rate: Dynamic Programming, *Annals of Applied Probability,* **3** (1993), 364–379.

[**9**] AC Heinricher and RH Stockbridge, Optimal Control and Replacement with State-dependent Failure Rate: An Invariant Measure Approach, *Annals of Applied Probability,* **3** (1993), 380–402.

[**10**] AC Heinricher and RH Stockbridge, Long-term Average Control of a Continuous, Monotone Process, *Journal of Applied Mathematics and Optimization,* **28** (1993), 181–196.

[**11**] TG Kurtz and RH Stockbridge, Existence of Markov Controls and Characterization of Optimal Markov Controls, *SIAM Journal of Control and Optimization,* **36** (1998), 609–653.
Erratum: *SIAM Journal of Control and Optimization.* **37** (1999), 1310–1311.

[**12**] MS Mendiondo and RH Stockbridge, Approximation of Infinite-Dimensional Linear Programming Problems which Arise in Stochastic Control, *SIAM Journal of Control and Optimization,* **36** (1998), 1448–1472.

[**13**] TG Kurtz and RH Stockbridge, Linear Programming Formulations of Stochastic Control Problems, *Proceedings of the 37th Conference on Decision and Control,* Tampa, Florida, December 1998, pp. 2662-2667.

[**14**] MS Mendiondo and RH Stockbridge, Approximating Linear Programming Problems Which Arise in Stochastic Control, *Proceedings of the 37th Conference on Decision and Control,* Tampa, Florida, December 1998, pp. 2341-2346.

[**15**] TG Kurtz and RH Stockbridge, Martingale Problems and Linear Programs for Singular Control, *37th annual Allerton Conference on Communication Control and Computing* (Monticello, Ill. 1999), 11–20, Univ. Illinois, Urbana-Champaign, Ill.

[**16**] K Helmes and RH Stockbridge, Numerical Comparison of Controls and Verification of Optimality for Stochastic Control Problems, *Journal of Optimization Theory and Applications,* **106** (2000), pp. 107–127.

[**17**] K Helmes, S Röhl and RH Stockbridge, Computing Moments of the Exit Time Distribution for Markov Processes by Linear Programming, *Operations Research,* **49** (2001), 516–530.

[**18**] K Helmes and RH Stockbridge, Numerical Evaluation of Resolvents and Laplace Transforms of Markov Processes, *Mathematical Methods of Operations Research,* **53** (2001), 309-331.

[**19**] TG Kurtz and RH Stockbridge, Stationary Solutions and Forward Equations for Controlled and Singular Martingale Problems, *Electronic Journal of Probability,* **6** (2001), Paper No. 14, 1-52.

[**20**] MJ Cho and RH Stockbridge, Linear Programming Formulation for Optimal Stopping Problems, *SIAM Journal of Control and Optimization* **40** (2002), 1965–1982.

[**21**] RH Stockbridge, Portfolio Optimization in Markets Having Stochastic Rates, in *Stochastic Theory and Control,* B. Pasik-Duncan, ed., Lect. Notes in Control and Inform. Sci., **280** (2002), 447-458.

[**22**] MS Mendiondo and RH Stockbridge, Long Term Average Cost with Cost Based on the Local Time of a Diffusion, in *Markov Processes and Controlled Markov Chains,* Z. Hou, J.A. Filar, A. Chen eds., Kluwer (2002), 425–441.

[**23**] RH Stockbridge, Option Pricing for Finite Models with Limits on Hedging, *Proceedings of the Fourth Asian Control Conference,* Singapore, (2002), 1563-1568.

[24] K Helmes and RH Stockbridge, Extension of Dale's Moment Conditions with Application to the Wright-Fisher Model, *Stochastic Models,* **19** (2003), 255–267.

[25] RH Stockbridge, The Problem of Moments on a Polytope and Other Bounded Regions, *Journal of Mathematical Analysis and Applications*, **285** (2003), 356–275.

[26] RH Stockbridge, Characterizing Option Prices by Linear Programs, in *Mathematics of Finance,* G. Yin and Q. Zhang eds., AMS Contemporary Mathematics **351** (2004), 349–359.

[27] RH Stockbridge, A Separation Principle for Partially Observed Control of Singular Stochastic Processes, *Nonlinear Analysis,* **63** (2005), e2057-2065 (electronic).

[28] RH Stockbridge and Z Zheng, The Pedestrian Principle for Dynamic Games, *International Journal of Game Theory,* **8** (2006), pp. 715–737.

[29] K Helmes and RH Stockbridge, Linear Programming Approach to the Optimal Stopping of Singular Stochastic Processes, *Stochastics: An International Journal of Probability and Stochastic Processes,* **79** (2007), 309-335.

[30] P Kaczmarek, ST Kent, GA Rus, RH Stockbridge, BA Wade, Numerical Solution of a Long-term Average Control Problem for Singular Stochastic Processes, *Mathematical Methods of Operations Research,* **66** (2007), 451–473.

[31] K Helmes and RH Stockbridge, Determining the Optimal Control of Singular Stochastic Processes using Linear Programming, *Markov Processes and Related Topics: A Festschrift for Thomas G. Kurtz*, SN Ethier, J Feng and RH Stockbridge (eds.), IMS Collections **4** (2008), 137–153.

[32] GA Rus, RH Stockbridge and BA Wade, On the Approximation of Controlled Singular Stochastic Processes, *Proceedings of the International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2009,* **III** (2009), 954–964.

[33] KL Helmes and RH Stockbridge, Construction of the Value Function and Stopping Rules for Optimal Stopping of One-Dimensional Diffusions, *Advances in Applied Probability,* **42** (2010), 158–182.

[34] F Dufour and RH Stockbridge, Existence of Strict Optimal Controls for Long-term Average Stochastic Control Problems, *Proceedings of the 19th International Symposium on Mathematical Theory of Networks and Systems - MTNS 2010,* (2010), 1793-1797.

[35] KL Helmes and RH Stockbridge, The Beneš Problem and Related Problems Revisited, *Proceedings of the 19th International Symposium on Mathematical Theory of Networks and Systems - MTNS 2010,* (2010), 1799-1803.

[36] F Dufour and RH Stockbridge, "Existence of Strict Optimal Controls for Discounted Stochastic Control Problems," in *Modern Trends in Controlled Stochastic Processes: Theory and Applications,* A. Piunovskiy (ed.), (2010), 12–22.

[37] KL Helmes and RH Stockbridge, Thinning and Harvesting of Stochastic Forest Models, *Journal of Economic Dynamics and Control,* **35** (2011), 25-39; available online (2010), DOI information: 10.1016/j.jedc.2010.10.007

[38] Q Song, RH Stockbridge, C Zhu, "On Optimal Harvesting Problems in Random Environments," *SIAM Journal of Control and Optimization,* **49** (2011), 859–889.

[**39**] KL Helmes, RH Stockbridge and H Volkmer, Analysis of Production Decisions under Budget Limitations, *Stochastics: An International Journal of Probability and Stochatic Processes,* **83** (2011), 583–609, DOI: 10.1080/17442508.2010.543682.

[**40**] F Dufour and RH Stockbridge, "On the Existence of Strict Optimal Controls for Constrained, Controlled Markov Processes in Continuous-Time," *Stochastics: An International Journal of Probability and Stochastic Processes,* **84** (2012), 55–78; DOI: 10.1080/17442508.2011.580347.

[**41**] RH Stockbridge and C Zhu, "A Direct Approach to the Solution of Optimal Multiple-Stopping Problems," in *Optimization, Control, and Applications of Stochastic Systems,* D Hernández-Hernńdez and A Minjárez-Sosa (eds.), (2012), 283–300, Springer.

[**42**] RH Stockbridge and C Zhu, "Harvesting in Stochastic Environments: Optimal Policies in a Relaxed Model," in *System Modeling and Optimization,* Dietmar Hömberg and Fredi Tröltzsch, (eds.), (2013), 197–206, Springer.

[**43**] RH Stockbridge, "Discussion of Dynamic Programming and Linear Programming Approaches to Stochastic Control and Optimal Stopping in Continuous Time," *Metrika*, **77** (2014), 137–162.

[**44**] KL Helmes, RH Stockbridge and C Zhu, "Impulse Control of the Beneš Process," *Proceedings of the Symposium on the Mathematical Theory of Networks and Systems 2014*, (2014), 1856–1861.

[**45**] KL Helmes, RH Stockbridge and C Zhu, "Impulse Control of Standard Brownian Motion: Long-term Average Criterion," in *System Modeling and Optimization,* C Pötzsche, C Heuberger, B Kaltenberger and F Rendl (eds.), (2014), 148–157, Springer.

[**46**] KL Helmes, RH Stockbridge and C Zhu, "Impulse Control of Standard Brownian Motion: Discounted Criterion," in *System Modeling and Optimization,* C Pötzsche, C Heuberger, B Kaltenberger and F Rendl (eds.), (2014), 158–169, Springer.

[**47**] KL Helmes, RH Stockbridge and C Zhu, "A Measure Approach for Continuous Inventory Models: Discounted Cost Criterion," *SIAM Journal on Control and Optimization,* **53** (2015), 2100–2140.

[**48**] KL Helmes, RH Stockbridge and C Zhu, "Continuous Inventory Models of Diffusion Type: Long-term Average Cost Criterion," *Annals of Applied Probability,* **27** (2017), 1831–1885.

ARXIV MANUSCRIPTS

[**arXiv:1702.01041**] KL Helmes, RH Stockbridge and C Zhu, "A Weak Convergence Approach to Inventory Control Using a Long-term Average Criterion," 41 pages. (submitted for publication)

[**arXiv:1702.01046**] KL Helmes, RH Stockbridge and C Zhu, "A Counterintuitive Example in Inventory Management," 16 pages. (submitted for publication)

[**arXiv:1707.09209**] TG Kurtz and RH Stockbridge, "Linear Programming Formulations of Singular Singular Stochastic Control Problems: Time-Homogeneous Problems," 27 pages.

EDITED VOLUME

Markov Processes and Related Topics: A Festschrift for Thomas G. Kurtz, Stewart N. Ethier, Jin Feng and Richard H. Stockbridge, Eds., Institute of Mathematical Statistics *Collections,* Volume 4, Institute of Mathematical Statistics, Beachwood, Ohio, 2008.

PRESENTATIONS

Invited Research Presentations

"The Hamilton-Jacobi-Bellman Equation for time-average control of martingale problems," Second Cincinnati Symposium on Probability Theory and Applications, Cincinnati, Ohio, April, 1988.

"Optimal control of the running max," The Louisville Meeting of the American Mathematical Society, Louisville, Kentucky, January, 1990.

"A martingale problem approach to optimal control and replacement problems," Fourth Southeast Probability Meeting, Lexington, Kentucky, June, 1991.

"Existence and Characterization of Optimal Markov Controls," The Cincinatti Meeting of the American Mathematical Society, Cincinnati, Ohio, January 1994.

"Existence and Characterization of Optimal Markov Controls II," INFORMS Conference on Applied Probability, Atlanta, Georgia, June 1995.

"Evaluating the optimal solution of an investment/consumption problem in the presence of transaction costs," 931st American Mathematical Society Meeting Louisville, Kentucky, March 1998.

"Portfolio Management with Transactions Costs," Tutorial Session of the Conference on Stochastic Control with Partial Observations and Financial Models of Incomplete Markets, Lexington, Kentucky, October 1998.

"Solutions for Absolutely Continuous and Singular Controlled Martingale Problems," 10th INFORMS Applied Probability Conference, Ulm, Germany, July 1999.

Panel of Experts on Stochastic Decision Processes, Panelist, 10th INFORMS Applied Probability Conference, Ulm, Germany, July 1999.

"Long term average control of a local time process," International Workshop on Markov Processes and Controlled Markov Chains, Changsha, China, August 1999.

"Portfolio management: a linear approach to a nonlinear problem," Conference on Nonlinear Statistical Models: Implementation and Application, Lexington, Kentucky, November 1999.

"Linear programming formulation for optimal stopping problems," Ninth International Symposium on Dynamical Games, Adelaide, Australia, December, 2000.

"Numerical evaluation of resolvents and Laplace transforms of Markov processes using linear programming," Ninth International Symposium on Dynamical Games, Adelaide, Australia, December 2000.

"Linear programming formulation for optimal stopping problems," Joint Mathematics Meetings, New Orleans, Louisiana, January 2001.

"Portfolio optimization in markets having stochastic rates," Stochastic Theory and Control Workshop, Lawrence, Kansas, October 2001.

"Stationary solutions and forward equations for controlled and singular martingale problems," Tenth Conference on the Mathematical Theory of Networks and Systems, South Bend, Indiana, August 2002.

"Option Pricing for Finite Models with Limits on Hedging," Fourth Asian Control Conference, Singapore, September 2002.

"Linear Programming Formulation of Singular Stochastic Control Problems," Joint AMS-IMS-SIAM Conference on the Mathematics of Finance, Snowbird, Utah, June 2003.

"A Separation Principle for Partially Observed, Singular Stochastic Control," Fourth World Congress of Nonlinear Analysts, Orlando, Florida, June/July 2004.

"Singular Stochastic Control via Linear Programming," *Conference on Martingales, Potential Theory and Stochastic Analysis,* University of Florida, 11 November 2005.

"Optimal Stopping of Singular Stochastic Processes via Linear Programming," 1 hour keynote address, Symposium on Optimal Stopping with Applications, Manchester, England, 24 January 2006.

"Singular Stochastic Control via Linear Programming," Conference on Markov Processes and Related Topics, Madison, Wisconsin, 10 July 2006.

"Numerical Solution for Control of a Singular Stochastic Process," 1020th Meeting of the AMS, Cincinnati, Ohio, 21 October 2006.

"Optimal Exercise Rule for a Perpetual Lookback Put Option," 1020th Meeting of the AMS, Cincinnati, Ohio, 22 October 2006.

"A Comparison of Dynamic Programming and Linear Programming for Control of Singular Stochastic Processes," Annual Meeting of the Southern African Mathematical Sciences Association, Gaborone, Botswana, November 2006.

"Optimal Exercise and Valuation of American Lookback Options," Stochastic Filtering and Control Workshop, University of Warwick, Coventry, England, August 2007.

"Option Pricing in a Regime-Switching Black-Scholes Market," American Mathematics Society Sectional Meeting 1038, Bloomington, Indiana, April 2008.

"Construction of the Value Function and Stopping Rules in Optimal Stopping," Annual Meeting of the Southern African Mathematical Sciences Association, Maputo, Mozambique, November 2008.

"Construction of the Value Function and Optimal Rules in Optimal Stopping of One-dimensional Diffusions," GAMM - Workshop "Stochastiche Modelle und Steuerung" (Stochastic Models and Control), Wittenburg, Germany, 18 March 2009.

"A Novel Approach to Entry-and-Exit Investment Decisions," Symposium on Optimal Stopping with Applications, Turku, Finland, 24 June 2009.

"A New Approach to the Harvest, Rotation and Thinning of Renewable Resources," SIAM Control Conference, Denver, Colorado, 7 July 2009.

"Existence of Strict Optimal Controls for Long-term Average Stochastic Control Problems," 19th International Symposium on Mathematical Theory of Networks and Systems, Budapest, Hungary, 8 July 2010.

"Existence of Strict Optimal Controls for Discounted Stochastic Control Problems," Workshop on Modern Trends in Controlled Stochastic Processes: Theory and Applications, Liverpool, England, 12 July 2010.

"Existence of Strict Optimal Controls for Constrained, Controlled Markov Processes in Continuous Time," (1 hour), Workshop on Stochastic Models and Control, Bad Herrenalb, Germany, 29 March 2011.

"Analysis of Production Decisions under Budget Limitations,", SIAM Conference on Control and Its Applications, Baltimore, Maryland, 26 July 2011.

"A Finite Element Approach to the Solution of Singular Stochastic Control Problems,", SIAM Conference on Control and Its Applications, Baltimore, Maryland, 27 July 2011.

"On Optimal Harvesting Problems in Random Environments,", SIAM Conference on Control and Its Applications, Baltimore, Maryland, 27 July 2011.

"On Optimal Harvesting Problems in Random Environments: Optimal Policies in a Relaxed Model," 25th IFIP TC 7 Conference on System Modeling and Optimization, Berlin, Germany, 13 September 2011.

"A Brief Look at Dynamic Programming and Linear Programming Approaches to Stochastic Control and Optimal Stopping in Continuous Time," (50 minutes, supported), Tenth German Probability and Statistics Days, Mainz, Germany, 6 March 2012.

"A Measure Formulation for Impulse Control Problems," Workshop on Optimal Stopping, Optimal Control and Finance, University of Warwick, Coventry, England, 18 July 2012.

"A Measure Formulation for Impulse Control of Brownian Motion," Workshop on Stochastic Models and Control, Humboldt Universität zu Berlin, Berlin, Germany, 21 March 2013.

"A Measure Approach to the Impulse Control of Real-Valued Processes," SIAM Conference on Control and Its Applications, San Diego, California, 10 July 2013.

"Linear Programming Formulations of Singular Stochastic Control Problems," 26th IFIP TC 7 Conference on System Modelling and Optimization, Alpen-Adria Universität, Klagenfurt, Austria, 12 September 2013.

"Impulse Control of the Beneš Process," 21st International Symposium on the Mathematical Theory of Networks and Systems 2014, Groningen, The Netherlands, 11 July 2014.

"Linear Programming Formulations of Singular Stochastic Control Problems," AMS Central Spring Sectional Meeting, East Lansing, Michigan, 14 March 2015.

"A Measure Approach for Continuous Inventory Models: Discounted Cost Criterion," Workshop on Stochastic Models and Control, Kaiserslautern, Germany, 18 March 2015.

"Linear Programming Formulations of Singular Stochastic Control Problems," Liverpool Workshop, Liverpool, England, 2 July 2015.

"A Measure Approach for Continuous Inventory Models: Discounted Cost Criterion," SIAM Conference on Control and Its Applications, Paris, France, 8 July 2015.

"A Measure Approach for Continuous Inventory Models: Long-term Average Cost Criterion," SIAM Conference on Control and Its Applications, Paris, France, 8 July 2015.

"Linear Programming Formulations of Singular Stochastic Control Problems," Midwest Mini-Conference on Stochastic Processes and Mathematical Finance, North Dakota State University, Fargo, North Dakota, 8 April 2017.

"A Weak Convergence Approach to Inventory Control Using a Long-term Average Criterion," SIAM Conference on Control and Its Applications, Pittsburgh, Pennsylvania, 11 July 2017.

Contributed Research Presentations

"Controlled martingale problems applied to the slow server problem," Eighteenth Conference on Stochastic Processes and their Applications, Madison, Wisconsin, June 1989.

"An invariant measure approach for optimal control and replacement problems," SIAM Conference on Control and Its Applications, Minneapolis, Minnesota, September, 1992.

"Evaluating the Optimal Solution of an Investment/Consumption Model in the Presence of Transaction Costs," Fourth SIAM Conference on Control and Its Applications, Jacksonville, Florida, May 1998.

"Linear Programming Formulations of Stochastic Control Problems," 37th Conference on Decision and Control, Tampa, Florida, December 1998.

"Approximating Linear Programming Problems Which Arise in Stochastic Control," 37th Conference on Decision and Control, Tampa, Florida, December 1998.

Colloquia, Seminars, Education-Related and Other Presentations

"A linear programming approach to time-average control of martingale problems," Kent State University, Kent, Ohio, November, 1987.

"Introducing Statistical Concepts Through Computer Simulation," Second PRISM Math–Sciences Conclave, Louisville, Kentucky, March 1995.

"A Numerical Verification Method for Stochastic Control Problems ," Probability Intern Program at the Center for Mathematical Sciences, University of Wisconsin, July 1995.

"Introducing Statistical Concepts Through Computer Simulation," Mathematical Sciences Symposium, Eastern Kentucky University, Richmond, Kentucky, March 1996.

"Long-term average control of the local time of a diffusion: Numerical approximation," Probability Intern Program at the Center for Mathematical Sciences, University of Wisconsin, August 1996.

"Using linear programming to solve a variety of stochastic control problems," Mathematics Department Colloquium, University of Kentucky, November 1996.

"Linear programming in stochastic control theory," Statistics Seminar, School of Mathematical Sciences, Bath University, June 1997.

"Linear programming for singular stochastic control problems," Institute for Operations Research Colloquium, Humboldt University of Berlin, June 1997.

"Evaluating the optimal solution of the Davis-Norman-Rishel problem," Probability Intern Program at the Center for Mathematical Sciences, University of Wisconsin, July 1997.

"Stochastic Analysis and Control using Linear Programming," Mathematics, Statistics and Computer Science Department Colloquium, University of Missouri Kansas City, 11 February 2005.

"Theory and Computation for Stochastic Control using Linear Programming," Stochastic Control Seminar, University of Wisconsin - Madison, 28 February 2005.

"Singular Stochastic Control using Linear Programming," Institute of Operations Research Seminar, Humboldt University of Berlin, Berlin, Germany, 17 January 2006.

"A Finite Element Methodology for Solution of Control Problems Involving Singular Control," Institute of Operations Research Seminar, Humboldt University of Berlin, Berlin, Germany, March 2007.

Statistics and Probability Workshop Leader, Institutions of Higher Education Annual Meeting, Wisconsin Dells, WI, November 2007.

"Optimal Exercise and Valuation of American Lookback Options," Institute for Operations Research Research Seminar, Humboldt University of Berlin, Berlin, Germany, March 2008.

"An Innovative Course in Discrete Probability and Statistics for Preservice Elementary School Teachers," 90-minute Workshop at the 2008 Annual Meeting of the National Council of Teachers of Mathematics, Salt Lake City, UT, April 2008.

"Introduction to the Mathematics of Pricing Options," Department of Mathematics Colloquium, University of Botswana, Gaborone, Botswana, October 2008.

"Construction of the Value Function and Optimal Rules in Optimal Stopping of One-dimensional Diffusions," Research Seminar of the Institute of Operations Research, Humboldt University of Berlin, Berlin, Germany, 16 March 2009.

"The Pricing of Financial Options for Simple Market Models," 45-minute presentation to the Science & Math Club, University of Wisconsin - Washington County, 6 April 2011.

"Impulse Control of the Random Walk Process," Operations Research Seminar, Humboldt University of Berlin, Berlin, Germany, 17 July 2014.

"One-directional Impulse Control of Diffusions: Long-term Average Cost Criterion," Department of Statistics, University of Warwick, Coventry, England, 6 May 2016.

"Long-term Average Impulse Control of Diffusions," Department of Actuarial Mathematics and Statistics, Heriot Watt University, Edinburgh, Scotland, 12 May 2016.

"Long-term Average Control of Continuous Inventory Models," Department of Mathematics , Iowa State University, Ames, Iowa, 6 October 2016.

PH.D. STUDENTS

Marta S. Mendiondo (1997), "Approximation of Infinite-Dimensional Linear Programming Problems," Department of Statistics, University of Kentucky, currently in the Department of Biostatistics, University of Kentucky.

Moon Jung Cho (2000), "Linear Programming Formulation for Optimal Stopping Problems," Department of Statistics, University of Kentucky, currently working for the Bureau of Labor Statistics, Maryland.

Hao He (2008), "Utility Maximization of a Portfolio that Includes an Illiquid Asset," Department of Mathematical Sciences, University of Wisconsin - Milwaukee, currently working for KMPG, New York.

George A. Rus (2009), co-advised with B. Wade, "Finite Element Methods for Control of Singular Stochastic Processes," Department of Mathematical Sciences, University of Wisconsin - Milwaukee, currently in the Department of Mathematics, University of Colorado at Colorado Springs.

Katharina Zaglauer (2009), "Fair Pricing of Participating Life Insurance Contracts in a Regime-Switching Market Environment,", Department of Mathematical Sciences, University of Wisconsin - Milwaukee. currently working for Ernst & Young, Germany.

Current: Charles Beer, Nyles Breecher, Samuel Nehls, Martin Vieten

M.S. STUDENTS

Neda Farzinnia (2002), "Exploring a Regime Switching Black-Scholes Model with Market Data."

Oliver Pauly (2003), "Observations about Volatility with Applications to Commodity Prices."

Kay Reinhold (2003), "Modeling the Overday and Overnight Changes of Stock Index Prices."

Jason Von Bergen (2003), "Modeling the Distributions of Future Margins of Disability Insurance Claims at Northwestern Mutual."

Katrin Ziehl (2004), "Age Dependence of the Fees of Highest Anniversary Value Death Benefit Option."

Achim Glaser (2005), "The Regime Switching Black Scholes Model and the Empirical Test."

Robert Reeb (2005), "Finding Moments of Measures by Linear Programming."

Peter Kaczmarek (2006), co-advised with B. Wade, "Numerical Analysis of a Long-term Average Stochastic Control Process."

Philip Orth (2006), "Regime Switching Black-Scholes Model Selection with Implications to Option Pricing."

Ansgar Linder (2007), "Optimal Consumption/Investment Strategies in the Presence of Transaction Costs."

Matthias Lutz (2007), "A Linear Programming Approach for Optimal Exercise and Valuation of American Lookback Options."

Franziska Hauessler (2008), "Modeling Electricity Spot Prices and Risk-Neutral Pricing of Options."

Katrin Jensen (2008), "A Linear Programming Approach to Determine the Exercise Rule for American Put Options."

Patrick Heinrich (2009), "Modeling Lumber Spot Prices with Stochastic Processes ."

Julia Eisenmann (2010), "Pricing Methods of Corridor Options."

Manuel Gröger (2010), "Option Pricing for the Trinomial Asset Pricing Model."

Hans Peter Steiner (2010), co-advised with C. Zhu, "Modeling the Population of Wolves over Time."

Devangkumar Bhatt (2011), "Pricing of Electricity Swing Options."

Jacqueline Bluhm (2011), co-advised with C. Zhu, "Optimal Multiple Stopping of Stochastic Processes: A Linear Programming Approach."

Melanie Serbiné (2011), co-advised with R. Feng, "Risk Measures for Investment Guarantees: Simulation Versus Exact Calculation."

Jan Wirfs (2011), "A Linear Programming Approach to Pricing and Finding the Exercise Rule for American Put Options."

Steffan Schreiber (2012), "Methods of Pricing Knock-Out Corridor Options."

Michael Wagner (2012), "Pricing of an American Lookback Put Option Using Linear Programming."

Markus Wahl (2013), "Markov Chain Monte Carlo Simulation of the Wright-Fisher Diffusion."

Cindy Nichols (2014), "Option Pricing for a General Stock Model in Discrete Time."

Markus Schuster (2015), "On the Riesz Representation for Optimal Stopping Problems."

Cornelia Krome (2017), "Black-Scholes Model: An Analysis of the Influence of Volatility."

B.A./B.S. CAPSTONE STUDENTS

Callie Kwiatkowski (2012), "Examination of the News Vendor Problem and Extensions."

Sarah Wardecke (2012), "Stochastic Interpretations of Option Pricing under Hedging Restrictions."

Aaron Fehl (2014), "Monte Carlo Simulations and Applications."

Xuan Ji (2015), "Binomial Option Pricing Model Building and Applications."

William Meidenbauer (2015), "Applications of Stieltjes Integration."

Aaron Sibila (2015), "Binomial Model for Option Pricing."

Katrina Gedemer (2016), "Option Pricing for Incomplete Markets."

COURSES TAUGHT

Undergraduate

Essentials of Algebra,
Introductory Statistics,

Discrete Probability and Statistics for Elementary Education Majors, (designed and created course)
Calculus I/II/III,
Finite Mathematics and Its Applications,
Introduction to Linear Algebra,
Introduction to the Language and Practice of Mathematics,
Linear Programming and Optimization
Mathematical Programming and Optimization
Stochastic Models in Finance,
Introductory Probability,
Introduction to Mathematical Statistics I/II,
Probability Models
Introduction to Linear Regression Analysis

Graduate

Introduction to Analysis I/II,
Theory of Probability,
Stochastic Differential Equations,
Stochastic Control Theory,
Stochastic Models,
Time Series Analysis,
Topics in Martingale Theory