Michael McAsey

Current Address:
Department of Mathematics
Bradley University
Peoria, IL   61625
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1213 E Forrest Hill Ave
Peoria, IL   61603
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EDUCATION:

Ph.D., M.S., Mathematics, 1978, 1974, University of Iowa, (Iowa City, Iowa).

B.S., Mathematics major, Physics minor, 1972, Marquette University, (Milwaukee, Wisconsin)

TEACHING EXPERIENCE:

Professor, Bradley University, 1995−present

Visiting Associate Professor, University of Iowa, 1989−1990 (sabbatical leave)

Associate Professor, Bradley University, 1984−1995

Assistant Professor, Bradley University, 1979−1984

Assistant Professor, Western Michigan University, 1978−1979

Visiting Instructor, Cornell College (Mt. Vernon, Iowa), 1977−1978

Teaching Assistant, University of Iowa, 1972−1977

Courses taught include:

Calculus, Differential Equations, Linear Algebra, Modern Algebra, Geometry, Real Analysis, Numerical Analysis, Complex Analysis, Elementary Statistics, Mathematical Statistics, Mathematical Modeling, Partial Differential Equations, Nonlinear Optimization, Differential Geometry, Game Theory (Honors course with J. Highfill)

Senior Projects Supervised:

Megan Goers, "Audio Applications of Wavelets" 2003

Andrew Green, "Lie Symmetries of First Order Differential Equations" 2006

April Ehling, "Wavelets" 2008

Kirstin Jerzy, "Competition and Cooperation: One-Stage vs Two-Stage Optimization" 2010

Margarita Rosiles Aguilera, "Vintage-Capital Accumulation with PDEs'" 2012

Daniel Hewett, "Variational Iteration Method and its Applications to First Order Nonlinear Differential Equations," 2013

Tyler Beason, "An Examination of the Optimal Control of Exhaustible Resources" 2014

Timothy Hoffman, "General Equilibrium: An Examination of Competitive Equilibria, the Contract Curve, and the Inter-relationship of Economic Variables" 2015

Elizabeth Podkowa, "Decoding Properties of Phase Portraits for Differential Equations with Purely Imaginary Eigenvalues" 2016

Jamie Reindeau, "What's Fair in Income? A study of the Gini Index" 2017

Lauren Lambach, "Modeling the Gene Regulatory Network of Two Sleep Cycle Proteins Using Differential Equations" 2017

Katie Wolfe, "Singular Sturm-Liouville Problems" 2019

RESEARCH INTERESTS

Optimal Control Theory, Mathematical Economics, Partial Differential Equations, Functional Analysis, Operator Theory, Structure of Operator Algebras and their invariant subspaces.

REFEREED PUBLICATIONS

"Non-self-adjoint Crossed Products," (with P.S. Muhly and K.-S. Saito), in Hilbert Space Operators, (ed. J. Bachar and D. Hadwin), Springer-Verlag, New York, (1978) 121-124.

"Nonselfadjoint Crossed Products," (with P.S. Muhly and K.-S. Saito)

   I. Trans AMS 248 (1979) 381-409,

   II. J. Math. Soc. Japan 33 (1981) 485-495,

   III. J. Operator Theory 12 (1984) 3-22.

"Invariant Subspaces of Nonselfadjoint Crossed Products," Pacific J. Math. 91 (1981) 457-473.

"Canonical Models for Invariant Subspaces," Pacific J. Math. 91 (1980) 377-395.

"On Projective Equivalence of Invariant Subspace Lattices," (with P.S. Muhly), Linear Algebra and Appl. 43 (1982) 167-179.

"Representations of Nonselfadjoint Crossed Products," (with P.S. Muhly), Proc. London Math Society 47 (1983) 128-144.

"Equivalence Classes of Invariant Subspaces in Nonselfadjoint Crossed Products," (with Muhly and Saito) Publication RIMS, Kyoto University, 20 (1984) 1119-1138.

"Preselecting Test Score Means," (with D. Tudor), Mathematics and Computer Education 21 (1987) 187-194.

"An Optimal Control Problem in Economics," (with J. Highfill), Internat. J. Math. & Math. Sci. 14 (1991) 537-544.

"A Heckscher-Ohlin Model with Exhaustible Resources: Multiple Equilibria and the Trade Theorems," (with J. Highfill and W. Weber), International Trade and Finance in the 1990s (Refereed Conference Proceedings), V. II, 1991, 535-548.

"Spatial Implementation of Lattice Isomorphisms," Contemporary Mathematics, 120 (1991) 113-115.

"Some Closed-Form Solutions of Burgers' Equation," (with L.A. Rubel), Studies in Applied Mathematics, 88(1993)173-190.

"Optimality of Recycling and the Location of a Recycling Center," (with J. Highfill and R. Weinstein), J. of Regional Science, 34 (1994) 583-597. (Reviewed in June 1995 issue of J. Economic Literature)

"Recycling, Waste Management, and Nonlinear Budget Constraints," (with J. Highfill), Atlantic Economic Society, Best Papers Proceedings, 4(1994) 125-131.

"Municipal Recycling: Location and Optimality," (with J. Highfill), The UMAP Journal, 15(1994)3-27.

"Municipal Waste Management: Recycling and Landfill Space Constraints," (with J. Highfill), J. of Urban Economics, 41(1997) 118-136.

"The Optimal Location of Two Recycling Centers ," (with J. Highfill and L. Mou), The Journal of Economics, 23 (1997) 107-121.

"Technology Choice: The Output and Employment Tradeoff," (with K. Goldberg and J. Highfill), The American Journal of Economics and Sociology, 57 (1998) 27-46.

"Locating a Recycling Center: The General Density Case," (with J. Highfill and L. Mou), International Advances in Economic Research, 4 (1998) 428-440

"Optimal Locations and the Mass Transport Problem," (with L. Mou), Contemporary Mathematics, 226 (1998) 131-148.

"Existence and Characterizarion of Optimal Locations," (with L. Mou), Journal of Global Optimization, 15 (1999) 85-104.

"The Landfilling Versus "Backstop" Recycling When Income Is Growing," (with J. Highfill), Environmental and Resource Economics, 19 (2001) 37-52.

"An Application of Optimal Control to the Economics of Recycling," (with J. Highfill), SIAM Review, 43 (2001) 679-693.

"Gains and Losses from Transfers of Solid Waste," (with J. Highfill), International Advances in Economic Research, 10 (2004) 123-132.

"Welfare Implications of Importing Municipal Waste," (with J. Highfill), Proceedings of 2004 Hawaii International Conference on Business, June, 2004, pp. 1323-1344.

"Generalized Riccati Equations Arising in Stochastic Games," (with L. Mou), Linear Algebra and Appl., 416 (2006) 710-723.

"The Consumer's Micro-Micro Gasoline Buying Decision," (with J. Highfill), International Advances in Economic Research, 13 (2007) 433-442

"Buying Gasoline for Hybrid Cars: Evidence from Daily Gasoline Prices," (with J. Highfill), National Social Science Perspectives Journal, 1 (2007) 75-81 and reprinted in National Social Science Journal 33 #1 (2008) 44-48, appeared November 2009.

"A Multiplier Rule on a Metric Space," (with L. Mou), Journal of Mathematical Analysis and Applications, 337 (2008) 1064–1071

"A Proof of a General Maximum Principle for Optimal Controls," (with L. Mou), Journal of Mathematical Analysis and Applications, 337 (2008) 1072–1088.

"Properties of Derivates and Some Applications," (with L. Mou), in *Variational Analysis and Generalized Differentiation in Optimization and Control*, Regina S. Burachik and Jen-Chih Yao (eds), proceedings of a conference in honor of Boris S. Mordukhovich, Springer, 2010, pp. 43 - 58.

"Dynamic Product Reliability Management for a Firm with a Complacent Competitor vs. a Lockstep Competitor," (with J. Highfill), Journal of Economics, 36 (2010) 9-54.

"Firm Metrics with Continuous R&D, Quality Improvement, and Cournot Quantities," (with J. Highfill), International Advances in Economic Research, 16 (2010) 243–256.

"Will Technological Progress Cure the "Advanced Technology Products" Trade Account Deficit?" (with J. Highfill), Global Economy Journal, Vol. 10, No. 4 (2010) Article 7.

"Remarks on the Continuity of Functions of Two Variables," (with L. Mou), Real Analysis Exchange, Vol. 37, No. 1 (2011) 167-176.

"Convergence of the Forward-Backward Sweep Method in Optimal Control," (with L. Mou and

W. Han), Computational Optimization and Applications, Computational Optimization and Applications, Vol. 53, No. 1 (2012) 207–226.

"Firm R&D Games with Differing Manufacturing Costs," (with J. Highfill), Journal of Business & Leadership: Research, Practice and Teaching, Vol. 8 (2012), 84–89.

"Dynamic Firm R&D Games: Manufacturing Costs and Reliability Paths," (with J. Highfill), Review of Economics and Finance, Vol. 3, No. 1 (2013) 1–14.

"Welfare Measures in Dynamic Firm R&D Games," (with J. Highfill), (invited paper) International Advances in Economic Research, Vol. 19, No. 4 (2013) 439–449.

"Calabi Triangles For Regular Polygons," (with L. Mou), International Journal of Geometry, Vol. 4, No. 2 (2015) 26–46.

"Product Reliability, R & D, and Manufacturing Cost Shocks," (with J. Highfill), Atlantic Economic Journal, accepted, 2017.

OTHER PUBLICATIONS

"Fréchet Introduces the Concept of Abstract Space," Great Events from History II: Science and Technology, (ed. F.N. Magill), Salem Press, Pasadena, CA, (1991) 325-329.

"Essay Questions," UME Trends, Vol. 2, No. 5, December 1990, p. 2.

"Peer Visits: How to Start Productive Conversations on Teaching" (with B. Frase), The National Teaching & Learning Forum, 7 (March 1998), 10-11; see also http://www/ntlf.com /html/pi/9803/peer_1.htm

WEB ACTIVITY

Web posting of True/False Reading Questions to accompany McCallum et al, *Multivariable Calculus*, (with C. Artino) 1998, http://www.calculus.net/CCH/

Questions for BU MTH 115, (with M.J. Sterling) 2008

PAPERS PRESENTED

"On the Projective Equivalence of Invariant Subspace Lattices," American Mathematical Society Annual Winter Meeting, Cincinnati, OH, January, 1982.

"Conditions on Utility Guaranteeing Existence of Optimal Extraction Paths in Unbounded Horizon Problems," American Mathematical Society Annual Summer Meeting, Providence, RI, August, 1988.

"Solutions of Burgers' Equation via Quasi-Solutions," American Mathematical Society Annual Winter Meeting, Baltimore, MD, January, 1992.

"A Mathematical Model for Municipal Recycling with a Landfill Constraint," American Mathematical Society Annual Winter Meeting, Cincinnati, OH, January, 1994.

"Effect of a Landfill Constraint on Municipal Recycling," Modeling Symposium, University of Wisconsin–LaCrosse, June 24, 1994

"Municipal Recycling and Landfill Capacity Constraints," (invited paper) at Minisymposium in Economics at the SIAM Conference on Optimal Control and Its Applications, St. Louis MO, April 1995

"An Optimal Control Model for Waste Management," at the Symposium for Modeling in the Undergraduate Curriculum, June 13-16, 1996, University of Wisconsin at La Crosse

"Existence and Characterization of Optimal Locations," (with L. Mou), AMS meeting, Baltimore MD, January 8, 1998.

"The Effects of Income on Recycling," (with J. Highfill), Symposium on Mathematical Modeling in the Undergraduate Curriculum, University of Wisconsin−LaCrosse, June 12-13, 1998.

"The Landfill/Recycling Decision When Income is Growing," (with J. Highfill), Miniconference on Advances in Optimal Design and Optimal Control, SIAM Annual Meeting, Atlanta, GA, May 12, 1999.

"Strict Sequential Derivatives on Metric Spaces," (with L. Mou), AMS Regional Meeting, Oxford Ohio, March 17, 2007 (invited)

"Optimal R & D spending and competition between firms," (with J. Highfill), AMS Special Session on Optimal Control in Applied Mathematical Modeling, Boston, MA, January 5, 2012 (invited)

"Maximal regular polygons inscribed in a triangle," (with L. Mou), ISMAA Annual Meeting, DeKalb Illinois, March 28, 2015.

"Tax Policy to Minimize the Gini Index," (with L. Mou), AMS national meeting, Atlanta, GA, January 6, 2017.

"Tax Policy to Minimize the Gini Index," (with L. Mou), ISMAA Annual Meeting, Glen Ellyn Illinois, March 31, 2017 (revised model).

"Tax Policy to Minimize the 20:20 Index,"(with L. Mou), AMS national meeting, Baltimore, MD, January 18, 2019.

Advanced Courses Taken (Partial List)

Differential Equations, Functional Analysis, Harmonic Analysis, Complex Analysis, Numerical Analysis, Algebraic Topology, Probability, Representation Theory, and Mathematical Statistics.

AMS/MAA Short Courses Attended at National Meetings

Environmental and Natural Resource Mathematics (Eugene, Oregon, 1984),

Wavelets (San Antonio, Texas, 1993),

Nonlinear Control Theory (San Antonio, Texas, 1999),

Wavelets in the Undergraduate Curriculum (New Orleans, LA, 2007)

UNIVERSITY SERVICE

University Library Committee (1982-2010)

Search Committees include:

    Library Director (1987)

    Theater Director (1990)

    Dean (LAS) (1991, 2013 (Chair))

    Provost (1997, 2009)

    Dean (Business) (2000-2001)

    Associate Provost for Information Resources and Technology (2004)

    Chair of Art Department (2005)

    University President (2007)

    2020 Committee (1988-1990)

LAS Dean's Advisory Committee on Tenure and Promotion
(1988, 1995-1997, 2002-2004, 2008-2010, 2015-2017)

Intellectual and Cultural Activities Committee (1991-1993, 2012-2016)

Board member of Friends of Cullom-Davis Library (1992-2000)

LAS Curriculum Committee (1993-1997)

Department Curriculum Committee (2002-2003, 2010-2011 (Chair))

Department Assessment Committee (2018-)

Committee on evaluation of LAS Dean (1994, 2003, 2009)

Faculty Grievance Committee (1994-1996)

Department Chair (1995-2001, 2004-2010)

University Conference (1995)

President $\phi\kappa\phi$ (1997-98)

Connectivity (1998-2000)

University Resources Committee (1999-2002)

University Tenure, Promotion, & Dismissal Committee (2001-2002, 2006-2008, 2015-2017)

Ad Hoc Committee on Curriculum and Regulations Process (2007-2008)

University Senate Parliamentarian (2001-2002, 2009-)

Program Review Team, Bradley University

English Department (2002)

Chemistry Department (2004)

Vice President of University Senate (2002-2004)

President of University Senate (2004-2006)

University Strategic Planning Committee (2004-2006, 2016-2017)

Committee on On-Line Faculty Activity Reporting System (2008)

University Curriculum & Regulations Committee (2008-2011)

University Subcommittee on Curriculum (2008- (Chair, 2013-))

BU Subcommittee on Criterion 1 for NCA Accreditation (2008-2010)

Subcommittee 6 of the General Education Review (2012-2013)

BU Subcommittee on Criterion 3 for HLC Accreditation (2018-)

Professional Service

Reviewer for several journals including Mathematics and Computer Education; Proceedings of the American Math Society; UMAP Journal; PRIMUS; Environmental Economics & Policy Studies; International Journal on Mathematics and the Mathematical Sciences; Journal of Computational and Applied Mathematics

Member (1989-1995, 1997-2000) and Editor (1997-2000), editorial board, Anneli Lax New Mathematics Library (book series of the MAA)

Member editorial board, Dolciani Series (book series of the MAA) (2009-2015)

Member MAA Textbooks Editorial Board (2018-2021)

Secondary Schools Lecture Committee (ISMAA) (2002)

Test Construction Committee, American Dental Association (2004-2009)

Representative to Heartland Mathematics Partnership (2006-)

Outside reviewer for Program Review,
   Department of Mathematics, Seattle University, April, 2011
   Department of Mathematics, Manhattan College, April, 2014
   Department of Mathematics, Gonzaga University, April, 2016

Professional Memberships

American Mathematical Society,

Mathematical Association of America,

Society of Industrial and Applied Mathematics,

American Association of University Professors,

$\pi\mu\epsilon$ (Mathematics Honor Society),

$\phi\kappa\phi$ (National Honor Society)