

J. David Logan

Willa Cather Professor Emeritus
Department of Mathematics
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Revised: January 4, 2015

SPECIALIZATIONS

Applied mathematics with specialization in mathematical modeling; nonlinear partial differential equations; mathematical ecology; mathematics of porous media; chemically reacting fluid flow.

EDUCATION

1966 BS. The Ohio State University (mathematics & physics)
1968 M.S. The Ohio State University (mathematics)
1970 Ph.D. The Ohio State University (mathematics)

PROFESSIONAL EXPERIENCE

1981-2005 University of Nebraska at Lincoln

Willa Cather Professor Emeritus--2014

Willa Cather Professor 2005—2014

Professor of Mathematics 1981—2005

Department Chair 1983—1988

Distinguished Teaching Award 1991

1988-1989 Rensselaer Polytechnic Institute

Visiting Professor of Mathematics

1973-1981 Kansas State University

Assistant Professor 1973-76; Associate Professor 1976-81

1974-1985 Los Alamos National Laboratory & Lawrence Livermore National Laboratory

Collaborator, LANL Group M3 (Shock Wave Physics) 1978-80; 1984.

Collaborator, LLNL B-Division (Hydrodynamics) 1974-78; 1981 (H-Division)

1970—71 *University of Arizona*
Assistant professor (post-doctoral)

1970—71 *University of Dayton Research Institute*
Staff Mathematician (post-doctoral)

1966-67 *Defense Supply Agency* (summers)
Statistician (Management Information Branch)

BOOKS IN APPLIED MATHEMATICS

- *Invariant Variational Principles*, Academic Press, Inc., New York-London. Vol. 138, Mathematics in Science and Engineering, (1977).
- *Applied Mathematics: A contemporary Approach*, Wiley-Interscience, New York (1987), xviii + 572 pp.
- *Nonlinear Partial Differential Equations*, Wiley Interscience, Series in Pure and Applied Mathematics, New York (1994).
- *Applied Mathematics*, 2nd Ed, Wiley-Interscience, New York, 476+xiv pp (1997).
- *Applied Partial Differential Equations*, Springer, New York, (1998).
- *Transport Modeling in Hydrogeochemical Systems*, Vol 15. Series in Interdisciplinary Applied Mathematics, Springer, New York (2001).
- *Applied Mathematics*, Greek edition (ΕΦΑΡΜΟΣΜΕΝΑ ΜΑΘΗΜΑΤΙΚΑ, ΠΕΚ, ΗΡΑΚΛΕΙΟ, 2002).
- *Applied Partial Differential Equations*, 2nd ed, Springer, New York (2004).
- *A First Course in Differential Equations*, Springer, New York (2005).
- *Applied Mathematics*, 3rd ed., Wiley-Interscience, New York (2006).
- *Introduction to Nonlinear Partial Differential Equations*, 2nd ed., Wiley-Interscience, Series in Pure and Applied Mathematics (2008).
- *Mathematical Methods in Biology*, John Wiley & Sons, New York (2009). With William Wolesensky.
- *A First Course in Differential Equations*, 2nd ed., Springer, New York (2011).

- *Applied Mathematics*, 4th ed., John Wiley & Sons, New York (2013).
- *Applied Partial Differential Equations*, 3rd ed., Springer, New York (2011).
- *A First Course in Differential Equations*, 3rd ed., Springer, New York (2015).

RESEARCH PUBLICATIONS

1. T. J. McDaniel & J. D. Logan, 1971. Dynamics of cylindrical shells with variable curvature, *Journal of Sound and Vibration* **19**, 39-48.
2. J. D. Logan, 1972. Generalized invariant variational problems, *Journal of Mathematical Analysis and Applications* **38**, 174-186.
3. J. D. Logan, 1972. First integrals in the discrete variational calculus, Short Communication, *Aequationes Mathematicae* **8**, 199-200.
4. J. D. Logan, 1973. Higher dimensional problems in the discrete calculus of variations, *International Journal of Control* **17**, 315-320.
5. J. D. Logan, 1973. Invariance and the n-body problem, *Journal of Mathematical Analysis and Applications* **42**, 191-197.
6. J. D. Logan, 1973. First integrals in the discrete variational calculus, *Aequationes Mathematicae* **9**, 210-220.
7. J. D. Logan, 1973. A canonical formalism for systems governed by certain difference equations, *International Journal of Control* **17**, 1095-1103.
8. J. D. Logan, 1974. On variational problems which admit an infinite continuous group, *Yokohama Mathematical Journal* **22**, 31-42.
9. J. D. Logan, 1974. Conformal invariance of multiple integrals in the calculus of variations, *Journal of Mathematical Analysis and Applications* **48**, 618-631.
10. L. E. Fuller & J. D. Logan, 1974. A simple method for calculating determinants, *Bulletin of the Kansas Association of Teachers of Mathematics* **48**, 18-20.
11. L. E. Fuller & J. D. Logan, 1974. On the evaluation of determinants by Chio's method, *Two-Year College Mathematics Journal* **6**, 8-10.

12. J. D. Logan, 1974. Some invariance identities for discrete systems, *International Journal of Control* **19**, 919-923.
13. J. D. Logan & J. S. Blakeslee, 1975. An invariance theory for second-order variational problems, *Journal of Mathematical Physics* **16**, 1374-1379.
14. J. D. Logan, 1974. On some invariance identities of H. Rund, *Utilitas Mathematica* **7**, 281-286.
15. J. D. Logan & J. S. Blakeslee, 1976. Conformal conservation laws for second-order scalar fields, *Il Nuovo Cimento* **34**, 319-324.
16. J. D. Logan, R. S. Lee, R. C. Weingart, & K. S. Yee, 1977. The calculation of heating and burst phenomena in electrically exploded foils, *Journal of Applied Physics* **48**, 621-628.
17. J. D. Logan & J. S. Blakeslee, 1977. Conformal identities for invariant second-order variational problems depending on a covariant vector field, *Journal of Physics, A: Mathematical* **10**, 1353-1359.
18. R. Weingart, J. D. Logan, et al, 1978. Manganin stress gages in reacting high explosive environment. In: *Actes du Symposium International Sur le Comportement des Milieux Denses sous Hautes Pressions Dynamiques*, Editions du Commissariat al Energie Atomique, Saclay, 451-462.
19. J. D. Logan, 1978. The determination of voltage in exploding foil experiments, *Journal of Applied Physics* **49**, 3590-3592.
20. J. D. Logan, 1980. Conservation laws in circuit theory, *International Journal of Electrical Engineering* **17**, 349-354.
21. J. D. Logan & J. J. Perez, 1980. Similarity solutions for reactive shock hydrodynamics, *SIAM Journal of Applied Mathematics* **39**, 512-527.
22. J. D. Logan & J. B. Dzil, 1982. Self-similar solution to the spherical detonation problem, *Combustion and Flame* **42**, 253-269.
23. J. D. Logan & W. A. Parker, 1982. Dimensional analysis and the Pi theorem, *Linear Algebra and Its Applications* **47**, 117-126.
24. J. D. Logan & D. D. Holm, 1983. Self-similar detonation waves, *Journal of Physics A: Mathematical* **16**, 2035-2047.

25. J. D. Logan & J. B. Bdzil, 1984. Conservation laws for second order invariant variational problems, *Journal of Physics A: Mathematical* **17**,3425-3428.
26. J. D. Logan, 1985. Similarity solutions of the Euler equations in the Calculus of Variations, *Journal of Physics A: Mathematical* **18**, 2151-2155.
27. J. D. Logan, 1988. Model Solutions of the Wood-Kirkwood Equations, *Journal of Physics A: Mathematical* **21**, 643-650.
28. J. D. Logan & E. L. Woerner, 1989. Sensitivity of self-similar Z-N-D waves in condensed media, *IMA Journal of Applied Mathematics* **43**, 167-184.
29. J. D. Logan, 1989. Forced response of a linear hyperbolic system, *Applicable Analysis* **33**, 255-266 (1989).
30. J. D. Logan & A. Kapila, 1989. Hydrodynamic stability of chemical equilibrium, *International Journal Engineering Science* **27**(12), 1651-1659.
31. J. D. Logan, 1991. Wave Propagation in a qualitative model of combustion under equilibrium conditions, *Quarterly of Applied Mathematics* **XLIX**(3), 463-476.
32. J. D. Logan & G. W. Ledder, 1991. A signaling problem for near-equilibrium flows in the Fickett-Majda Model of combustion, *IMA Journal of Applied Mathematics* **47**(3), 229-246.
33. J. D. Logan & E. L. Woerner, 1991. Self-similar reacting flows in variable density media, *Journal of Physics A: Mathematical* **24**, 2013-2028.
34. J. D. Logan & S. R. Dunbar, 1992. Traveling waves in model reacting flows with reversible kinetics, *IMA Journal of Applied Mathematics* **49**, 103-121.
35. J. D. Logan, 1992. An inhomogeneous nonlinear boundary value problem in model reactive media, *Applied Mathematical Modelling* **16**, 291-299.
36. G. W. Ledder & J. D. Logan, 1992. Weakly nonlinear asymptotic models and analogs of detonation process, *International Journal of Engineering Science* **30**(12), 1759-1772.
37. J. D. Logan & T. S. Shores, 1993. Steady-state solutions in a model reacting flow problem, *Applicable Analysis* **48**, 273-286.

38. J. D. Logan & T. S. Shores, 1993. Travelling waves produced by moving sources in a nonlinear reactive-convective system, *Mathematical Modelling and Methods in the Applied Sciences* **3**(1) 1-18.
39. J. D. Logan, 1993. Weakly nonlinear reactive shocks with lateral divergence, *Journal of Physics A: Mathematical* **26**, 411-426.
40. J. D. Logan & T. S. Shores, 1993. On a system of nonlinear hyperbolic conservation laws with sources, *Mathematical Models and Methods in Applied Science* **3**(3) 341-358.
41. J. D. Logan, 1995. A partial differential equation with a functional source, *Panamerican Mathematical Journal* **5**(1) 13-23.
42. S. Cohn & J. D. Logan, 1995. Mathematical analysis of a reactive-diffusive model of the dispersal of a chemical tracer with nonlinear convection, *Mathematical Models and Methods in Applied Science* **5**(1), 29-46.
43. J. D. Logan & V. Zlotnik, 1995. The convection-diffusion equation with periodic boundary conditions, *Applied Mathematics Letters* **8**(3), 55-61.
44. J. D. Logan & G. Ledder, 1995. Traveling waves for a non-equilibrium, two-site, nonlinear sorption model, *Applied Mathematical Modelling* **19**, 271-277.
45. J. D. Logan & S. Cohn, 1995. Existence of solutions to equations modeling colloid transport in porous media, *Communications on Applied Nonlinear Analysis* **2**(2), 33-44.
46. J. D. Logan & G. Ledder, 1996. Time-periodic transport in heterogeneous porous media, *Applied Mathematics and Computation* **75**, 119-138.
47. J. D. Logan, 1996. Solute transport in porous media with scale dependent dispersion and periodic boundary conditions, *Journal of Hydrology* **184**, 261-276.
48. V. Zlotnik & J. D. Logan, 1996. Boundary conditions for convergent radial tracer tests and effect of well bore mixing volume, *Water Resources Research* **32**(7), 2323-2328.
49. J. D. Logan, S. Cohn & V. Zlotnik, 1996. Transport in fractured porous media with time-periodic boundary conditions, *Mathematical and Computer Modelling*, **24**(9), 1-9.

50. J. D. Logan, S. Cohn, & T. Shores, 1996. Stability of traveling waves for a solute transport problem in porous media, *Canadian Applied Mathematics Quarterly* **4**(3), 243-263.
51. J. D. Logan, 1997. Weighted L^2 stability of traveling waves in porous media, *Communications in Applied Nonlinear Analysis* **4**(1), 55-62.
52. J. D. Logan & M. Homp, 1997. Contaminant transport in fractured media with sources in the porous domain, *Transport in Porous Media* **29**, 341-353.
53. J. D. Logan, 1997. Stability of wave fronts in a variable porosity model, *Applied Mathematics Letters* **10**(6), 83-89.
54. J. D. Logan, 1998. Wave front solutions to a filtration equation with growth, *Communications in Applied Nonlinear Analysis* **5**(1), 33-43.
55. J. D. Logan, 1998. Similarity solution to a heat exchange problem, *SIAM Review* **40**(4), 918-921.
56. M. Homp, J. D. Logan, & G. Ledder, 1998. A singular perturbation problem in fractured media with parallel diffusion, *Mathematical Models and Methods in Applied Science* **8**(4), 645-655.
57. J. D. Logan & M. Homp, 1999. Shocks and wave fronts in a convection-diffusion-adsorption model with bounded flux, *Communications in Applied Nonlinear Analysis* **6**(3), 1-15.
58. J. D. Logan, 1999. Resistive heating in an RCL circuit, *International Journal of Mathematics Education in Science and Technology* **30**(6), 855-860.
59. J. D. Logan, 1999. Reaction fronts in porous media with varying porosity. An exact solution, *Nonlinear Analysis* **6**(4), 45-50.
60. J. D. Logan, G. Ledder & S. Cohn, 2001. Analysis of a filtration model in porous media, *Mathematical Modelling (Russian)* **13**(2), 110-116 (2001); reprinted in: *PanAmerican Mathematical Journal* **10**(1), 1-16 (2000).
61. J. D. Logan & G. Ledder, 2000. Contamination and remediation waves in a filtration model, *Applied Mathematics Letters* **13**, 75-84.
62. J. D. Logan, 2001. Approximate wave fronts in a class of reaction-diffusion equations, *Communications in Applied Nonlinear Analysis* **8**(2), 23-30.

63. G. Ledder & J. D. Logan, 2002. Corrigendum: Contamination and remediation waves in a filtration model, *Applied Mathematics Letters* **15**, 127-127.
64. J. D. Logan & W. Wolesensky, 2002. Particle accretion and release in flows of suspensions, *Mathematical and Computer Modelling* **35**, 1197-1208.
65. J. D. Logan, M. Petersen & T. Shores, 2002. Numerical study of reaction-mineralogy-porosity changes in porous media, *Applied Mathematics and Computation* **127**, 149-164.
66. J. D. Logan, A. Joern & W. Wolesensky, 2002. Location, time, and temperature dependence of digestion in simple animal tracts, *Journal of Theoretical Biology* **216**, 5-18.
67. J. D. Logan, 2003. Nonlocal advection problems, *International Journal of Mathematics Education in Science and Technology*, **34**(2), 271-277.
68. J. D. Logan, 2003. Biological invasions with flux-limited dispersal, *Math. Sci. Res. J.* **7**(2), 47—62.
69. J. D. Logan, A. Joern & W. Wolesensky, 2003. Chemical reactor models of optimal digestion efficiency with constant foraging cost, *Ecological Modelling* **168**, 25—38.
70. G. Ledder, J. D. Logan, & A. Joern Dynamic energy budget models with size-dependent hazard rate, *J. Math. Biol.* **48**(6), 605-622.
71. J. D. Logan, A. Joern & W. Wolesensky, 2004. Control of CNP homeostasis in herbivore consumers through differential assimilation, *Bulletin Math. Biol.* **66**(4), 707—725.
72. J. D. Logan, A. Joern & W. Wolesensky, 2005. Mathematical model of consumer homeostasis control in plant-herbivore dynamics, *Mathematical and Computer Modelling* **40**, 446—456.
73. A. Joern, J. D. Logan, & W. Wolesensky, 2005. Effect of global climate change on agricultural pests: Possible impacts and dynamics at population, species-interaction, and community levels, pp 321—362 in: Chapter 13: *Climate Change and Global Food Security*, R. Lal *et al* (eds), CRC Press, Boca Raton, FL.
74. J. D. Logan W. Wolesensky & A. Joern , 2005. A model of digestion modulation in grasshoppers, *Ecological Modelling* **188**, 358—373.

75. A. Joern, B. J. Danner, J. D. Logan & W. Wolesensky, 2006. Natural history of mass-action in predator-prey models: A case study from wolf spiders and grasshoppers, *The American Midland Naturalist* **156**: 52—64.
76. J. D. Logan & W. Wolesensky, 2006. Chemical Reactor Models of Digestion Modulation, Chapter 8 in: *Focus on Ecology Research*, J. Burk, ed., pp 197—247, Nova Science Publishers, New York.
77. J. D. Logan, A. Joern & W. Wolesensky. 2006. Temperature-dependent phenology and predation in arthropod systems, *Ecological Modelling* **196**: 471—482.
78. J. D. Logan, W. Wolesensky, & A. Joern. 2007. Insect development under predation risk, variable temperature, and variable food quality, *Mathematical Biosciences and Engineering* **4**(1): 47—65.
79. J. D. Logan & W. Wolesensky, 2007. An individual, stochastic model of growth incorporating state-dependent risk and random foraging and climate, *Mathematical Biosciences and Engineering* **4**(1): 67-84.
80. J. D. Logan & W. Wolesensky, 2007. Accounting for temperature in predator functional responses, *Natural Resource Modeling*, **20**(4): 549-574.
81. J. D. Logan & W. Wolesensky, 2007. An index to measure the effects of climate change on trophic interactions, *Journal of Theoretical Biology* **246**: 366-376.
82. J. D. Logan, 2008. Phenologically-structured predator-prey dynamics with temperature dependence, *Bull. Math. Biol.* **70**(1): 1-20.
83. J. D. Logan, G. Ledder & W. Wolesensky, 2009. Type II functional response for continuous, physiologically-structured models, *Journal of Theoretical Biology* **259**: 373-381.
84. A. Parrott & J. D. Logan, 2012. Effects of temperature on TSD in turtle (*C. picta*) populations, *Ecological Modelling* **221**: 1378-1393.
85. J. D. Logan, J. Janovy, & B. Bunker, 2012. The life cycle and fitness domain of gregarine (Apicomplexa) parasites, *Ecological Modelling* **213**: 31-40.
86. B. E. Bunker, J. Janovy Jr., E. Tracy, A. Barnes, A. Duba, M. Shuman, J. D. Logan, 2013. Macroparasite population dynamics among geographical localities and host life cycle stages: Eugregarines in *Ischnura verticalis*, *Journal of Parasitology* **99**(3): 403-409.

BOOK REVIEWS

1. *Modelling Mathematical Methods and Scientific Computation* by N. Bellomo and L. Preziosi, *SIAM Review* **39**(1), 154-156 (1997).
2. *Thinking About Ordinary Differential Equations* by R.E. O'Malley, *SIAM Review* **40**(1), 163-164 (1998).
3. *Mathematical Models in the Applied Sciences* by A.C. Fowler, *SIAM Review* **40**(3), 745-746 (1998).
4. *Partial Differential Equations* by L.C. Evans, *SIAM Review* **41**(2), 393-395 (1999).
5. Featured review: "PDE Books: Present and Future", *SIAM Review* **42**(3), 515-522 (2000).
6. "Industrial Mathematics and Modeling", *American Mathematical Monthly* **107**(10), 964-967 (2000).
7. *The Versatile Soliton* by A. T. Filipov, *American Mathematical Monthly* **109**(4), 400-402 (2002).
8. *Diffusion Phenomena* by R. Ghez. *SIAM Review* **44**(3), 500-501 (2002).
9. *Methods of Applied Mathematics with a MATLAB Overview* by J. H. Davis, *SIAM Review* **46**(2), 367--368 (2004).
10. *Fields, Waves, and Continua* by D. F. Parker, *SIAM Review* **46**(3), 579--581 (2004).
11. *Mathematical Models in Biology* by E. Allman & J. Rhodes, *American Mathematical Monthly* **112**(9), 847—850 (2005).
12. *Partial Differential Equations* by R. M. M. Mattheij et al, *SIAM Review* **48**(3), 620—621 (2006).
13. *Partial Differential Equations* 3rd ed., by E. Zauderer, *SIAM Review* **49**(2), 350—352 (2007).
14. Guest editor: *Mathematical Biosciences and Engineering* **4** No. 1, (2007).
15. Featured Review: "Applied Mathematics". *SIAM Review* **52** (1), 173—178 (2010).
16. *Mathematical Modeling* by F. Heinz, *SIAM Review* **54** (3) (2012).
17. Featured Review: *Calculus of Variations and Control with Modern Applications*, by J. A. Burns, *SIAM Review*, **56** (2), 372—376 (2014).

TECHNICAL REPORTS (1974—1983); EDITED VOLUMES

1. DC current distribution in a thin bridge wire conductor, TR-45, Kansas State University, Department of Mathematics, 1974 (with K. Yee). Contract Final Report.
2. The Ohmic heating of a strip conductor with temperature dependent resistivity, TR-46, Kansas State University, Department of Mathematics, 1974 (with K. Yee). Contract Final Report.
3. The transverse electromagnetic field supported by an infinitely conducting plane and a parallel infinitely conducting strip, UCID-16757, Lawrence Livermore Laboratory, 1975 (with K. Yee & W. Chan).
4. A numerical analysis of pre-burst temperatures in an exploding strip conductor, UCID-16735, Lawrence Livermore Laboratory 1975 (with K. Yee).

5. The calculation of heating and burst phenomena in electrically exploded foils, UCRL-77764 Rev. 1, Lawrence Livermore Laboratory, 1976 (with R. Lee, R. Weingart, & K. Yee).
6. EBF1: A computer simulation of the pre-burst behavior of electrically heated exploding foils, UCRL-52003, Lawrence Livermore Laboratory, 1976 (with R. Lee).
7. The determination of voltage in exploding foil experiments, UCRL-79767, Lawrence Livermore Laboratory, 1977.
8. Manganin stress gages in reacting high explosive environment, preprint UCRL-80440, Lawrence Livermore Laboratory, 1978 (with R. Weingart, *et al*).
9. Similarity methods for differential equations, UCID-19316, Lawrence Livermore National Laboratory, 1982. Based on videotapes for course CE1708, Computations Department, 1980.
10. The Brinkley-Kirkwood theory of underwater shockwave propagation, University of Nebraska, Department of Mathematics, 1983.

PHD STUDENTS

John Blakeslee 1976
 Jose de Jesus Perez 1978
 Edwin Woerner 1990
 Michelle Homp 1997
 Rikki Wagstrom 1999 (co-adviser with S. Cohn)
 William R. Wolesensky 2002
 Amy Parrott 2009
 Ben Nolting 2013 (co-adviser with C. Brassil).

PROFESSIONAL ACTIVITIES

- Guest Editor, Vol. 4(1), *Math. Bios. and Eng.* 2007
- Editor: *Communications in Applied Nonlinear Analysis*, 1992-present
- Member: *SIAM Editorial Board* (SIAM Review), 2005-2014
- Conference Organizer/Director:
 - *Midwest Differential Equations Conference*, 1996
 - *Workshop in Mathematical Hydrogeology*, 1999
 - *Mathematical Biology Workshop*, 2002
 - *AMS Sectional Meeting*, Special Session on Mathematical Biology, 2005

SENIOR THESES DIRECTED

- Brittany Bunker, 2013.
- Paul Macklin, 1996.

INVITED TALKS & COLLOQUIA (Partial List)

University of Cincinnati, Aerospace Research Laboratory, University of Dayton, California Institute of Technology, Sandia National Laboratory, Lawrence Livermore National Laboratory, Stanford University, Lawrence Berkeley Laboratory, University of Arizona, Kansas State University, Los Alamos National Laboratory, University of Nebraska, Wichita State University, Los Alamos National Laboratory, Universidad Autonoma de Puebla, University of South Dakota, University of Minnesota, University of Colorado, Colorado State University, Oregon State University, University of Oklahoma, University of Kansas, University of Tennessee, Rensselaer Polytechnic Institute, Park City Mathematical Biology Institute, University of Nebraska-Omaha, University of Nebraska-Kearney, Union College, Concordia College, Nebraska Wesleyan University, University of Nebraska Lincoln (Mathematics, Physics, Engineering Mechanics), College of Saint Mary, Cedar Point Biological Station, Doane College.

RESEARCH AREAS Through work at national laboratories and at universities, publications are in the following areas:

- Calculus of variations and local Lie groups of transformations; applications to conservation laws in mechanics and electromagnetic theory. Monograph published.
- Shock wave and detonation physics; related areas of gas and fluid dynamics (hydrodynamics); combustion theory.
- Hydrogeology and contaminant transport through subsurface structures; porous media. Monograph published.
- Nonlinear partial differential equations and applications; reaction-diffusion equations. Monograph-textbook published.
- Eco-physiology and mathematical ecology; predator-prey dynamics. Climate change effects on species and food webs. Book published 2009.

COMMITTEE POSITIONS HELD (Partial List)

Department: Department Chair; Graduate Committee Chair; Departmental Executive Committee; Graduate Advisory Committee, Graduate Exams Committee, Hiring Committee, Chair of Search Committee (2); Alumni Advisory Committee; Instituted Annual Newsletter; APR Committee 2006-2007, Math Biology Search Committee 2008—2009, Distinguished Professors Committee 2008-2014, Undergraduate Advisory Committee 2011-2014.

College: Honorary Degrees Committee; Assessment Committee; Long Range Planning Committee; DEAM Steering Committee; Committee on Research and Creativity Award; Actuarial Science Search Committee; SBS Search Committee (2); Graduate Faculty Fellow, Actuarial Science; Program of Excellence (Ecol & Evol. Biol.); School of Biological Science Search Committee.

University: Advisory Committee to Graduate Dean; Graduate Council; Graduate Committee of Actuarial Science; International TA Advisory Committee (TLC); Life

Sciences Integrative Graduate Recruitment Program (Steering Committee); Ecology and Evolutionary Biology (Area of Excellence).

RESEARCH SUPPORT (since 2000)

- NSF UMB grant. Senior investigator. RUTE mentor 2006-07, 2010-11. \$1.1 M.
- Department of Energy (National Center for Global Environmental Research) (2003-2006), \$298,500. *Effect of Global Climate Change on Grassland Pests*. With A. Joern. \$36,671 for 2nd year (through a subcontract with Kansas State University); \$33,984 for 3rd year.
- NSF Grant DMS-9708421 (1997-2000), \$75K: Program: Environmental Geochemistry & Biogeochemistry. *Mathematical Studies in Colloid Transport*.