Stephen J. Willson

January 2009

Education:

A.B. Mathematics	Harvard University (magna cum laude)	1968
M.A. Mathematics	University of Michigan (Ann Arbor)	1970
Ph.D. Mathematics	University of Michigan (Ann Arbor)	1973

Professional experience:

1973-77	Assistant Professor of Mathematics, Iowa State University
1977-82	Associate Professor of Mathematics, Iowa State University
1982-	Professor of Mathematics, Iowa State University
1992-95	Chair, Mathematics Department, Iowa State University

Research interests: Computational biology, phylogenetic trees, phylogenetic networks; game theory; cellular automata, fractals, chaotic dynamics, algebraic topology.

Honors and societies:

Phi Beta Kappa (Harvard "Junior Eight" 1967)
N.S. F. Graduate Fellowship 1968-72
A.M.S.
M.A.A.
Sigma Xi
S.I.A.M.
A.A.A.S.
Society of Systematic Biologists
AMOCO Outstanding Teacher Award, 1983
Vinograde Award for Excellence in Teaching and Advising of Graduate Students in Mathematics, 2007

Web Site:

http://www.public.iastate.edu/~swillson/homepage.html

Refereed publications:

1. Equivariant maps between representation spheres, Pacific J. Math 56 (1975): 291-296.

2. The converse to the Smith theorem for Z_p-homology spheres, Pacific J. Math. 56 (1975): 597-605.

3. On the ergodic theory of cellular automata, Math. Systems Theory 9 (1975): 132-141.

4. Equivariant homology theories on G-complexes, Trans. Amer. Math. Soc. 212 (1975): 155-171.

5. Homological dimensions of the isotropy ring, Duke Math. J. 43 (1976): 159-170.

6. The orbit space of a sphere by an action of Z_{p^s}, Proc. Amer. Math. Soc. 59 (1976):361-365.

7. The growth of configurations, Math. Systems Theory 10 (1977): 387-400.

8. Limiting shapes for configurations, J. Comput. System Sci., 15 (1977): 243-261.

9. On convergence of configurations, Discrete Math. 23 (1978): 279-300.

10. A semigroup on the space of compact convex bodies, SIAM J. Math. Anal. 11 (1980): 448-457.

11. Growth patterns of ordered cellular automata, J. Comput. System Sci. 22 (1981): 29-41.

12. Cellular automata can generate fractals, Discrete Applied Mathematics 8 (1984): 91-99.

13. Growth rates and fractional dimensions, Physica 10D (1984): 69-74.

14. On coherent growth of configuration, SIAM J. Math. Anal. 16 (1985): 316-330.

15. A use of cellular automata to obtain families of fractals, in M.F. Barnsley and S. G. Demko, eds., "Chaotic Dynamics and Fractals." Academic Press, Orlando, 1986, 123-140.

16. The equality of fractional dimensions for certain cellular automata, Physica 24D (1987): 179-189.

17. Computing fractal dimensions for additive cellular automata, Physica 24D (1987): 190-206.

18. Convergence of iterated median rules, Computer Vision, Graphics, and Image Processing 47 (1989): 105-110.

19. Decision procedures for openness and local injectivity, Complex Systems 5 (1991): 497-508.

20. Teaching about fractals, College Mathematics Journal 22 (1991): 56-59.

21. Calculating growth rates and moments for additive cellular automata, Discrete Applied Mathematics 35 (1992): 47-65.

22. Iterating maps on cellular complexes, Trans. Amer.Math.Soc.332 (1992): 225-240.

23. A value for partially defined cooperative games, International Journal of Game Theory 21 (1993): 371-384.

24. Long-term behavior in the theory of moves, Theory and Decision 45 (1998): 201-240.

25. Suranjan Panigrahi, Manjit K. Misra, and Stephen Willson. Evaluations of fractal geometry and invariant moments for shape classification of corn germplasm. Computers and Electronics in Agriculture 20 (1998) 1-20.

26. Measuring inconsistency in phylogenetic trees, Journal of Theoretical Biology 190 (1998): 15-36.

27. Building phylogenetic trees from quartets by using local inconsistency measures, Molecular Biology and Evolution 16 (1999): 685-693.

28. A higher-order parsimony method to reduce long-branch attraction, Molecular Biology and Evolution 16 (1999): 694-705.

29. Axioms for the outcomes of negotiation in matrix games, Mathematical Social Sciences 39 (2000): 323-348.

30. An error correcting map for quartets can improve the signals for phylogenetic trees, Molecular Biology and Evolution 18 (2001): 344-351.

31. Money-egalitarian-equivalent and gain-maximin allocations of indivisible items with monetary compensation, Social Choice and Welfare 20 (2003): 247-259.

32. Constructing rooted supertrees using distances. Bulletin of Mathematical Biology 66 (2004): 1755-1783.

33. Dan Ashlock, Stephen Willson, and Nicole Leahy. Coevolution and Tartarus. CEC2004: Proceedings of the 2004 Congress on Evolutionary Computation, Vol 2 (2004):1618-1624.

34. Minimum evolution using ordinary least-squares is less robust than neighbor-joining. Bulletin of Mathematical Biology 67 (2005) 261-279.

35. Consistent formulas for estimating the total lengths of trees. Discrete Applied Mathematics 148 (2005) 214-239.

36. Dan Ashlock, Kenneth M. Bryden, Steven Corns, and Stephen Willson. An improved taxonomy of evolutionary computation problems. Conference proceedings for ANNIE 2004 (Artificial Neural Networks in Engineering) conference in St. Louis.

37. Kenneth M. Bryden, Daniel A. Ashlock, Steven Corns, and Stephen J. Willson. Graph Based Evolutionary Algorithms. IEEE Transactions on Evolutionary Computation 10 (2006) 550-567.

38. Unique solvability of certain hybrid networks from their distances. Annals of Combinatorics 10 (2006) 165-178.

39. Unique reconstruction of tree-like phylogenetic networks from distances between leaves. Bulletin of Mathematical Biology 68 (2006) 919-944.

40. Unique determination of some homoplasies at hybridization events. Bulletin of Mathematical Biology 69 (2007) 1709-1725.

41. Reconstruction of some hybrid phylogenetic networks with homoplasies from distances. Bulletin of Mathematical Biology 69 (2007) 2561-2590.

42. Reconstruction of certain phylogenetic networks from the genomes at their leaves. Journal of Theoretical Biology 252 (2008) 338-349.

43. Robustness of topological supertree methods for reconciling dense incompatible data. To appear in IEEE/ACM Transactions on Computational Biology and Bioinformatics.

Talks at Professional Meetings

The orbit space of a sphere by an action of Z_{p}s. July 30, 1975 at the Fourth Annual Southern California Symposium on Algebraic and Geometric Topology, California State University, Long Beach.

Applications of an equivariant universal coefficient theorem. August 19, 1975 at the A.M.S. Summer Meeting, Kalamazoo, Michigan.

Limiting shapes for crystals. August 15, 1977 at the Special Session on Tilings, Patterns, and Symmetries at the A.M.S. Summer Meeting, Seattle, Washington.

Some geometric convergence results for certain cellular automata. October 17, 1981 at the Special Session on Discrete Geometry and its Applications, A.M.S. meeting at Amherst, Massachusetts.

Objects of fractional dimension, March 26, 1982 at M.A.A. meeting, Grinnell, Iowa.

Geometric properties of well-behaved cellular automata. March 10, 1983 at the Interdisciplinary Workshop on Cellular Automata, Los Alamos National Laboratory.

The geometry of coefficients of powers of polynomials. April 23, 1983 at the M.A.A. meeting, Ames, Iowa.

A use of cellular automata to obtain invariants of local chaotic behavior. March 27, 1985 at the Conference on Chaotic Dynamics, Georgia Institute of Technology, Atlanta, Georgia.

Computing the dimensions of a fractal related to the powers of a polynomial. August 8, 1987 at the A.M.S. meeting, Salt Lake City, Utah.

Morphisms on additive cellular automata. October 31, 1987 at A.M.S. Special Session on Celluar Automata and Nonlinear Dynamics, Lincoln, Nebraska.

Teaching about Fractals, April 8, 1989 at the M.A.A. meeting, Coe College, Cedar Rapids, Iowa.

Induced maps on the symbolic dynamics of chaotic spaces: an example, April 7, 1990 at the M.A.A. meeting, Ames, IA.

An introduction to fractal dimension, June 7, 1990 at MIU, Fairfield, Iowa.

A less arbitrary social choice function, April 25, 1992 at Iowa M.A.A. meeting, Graceland College, Lamoni, Iowa.

Growth rates for additive cellular automata. February 3, 1994 at the University of Manitoba.

A new envy-free allocation in the fair division problem. April 27, 1996 at the MAA meeting, Cornell College, Mount Vernon, Iowa.

Computing fair divisions with various formulations of fairness. May 17, 1996 at the Conference on Axiomatics of Resource Allocation, University of Montreal, Montreal. (invited talk)

Models of crystal growth using cellular automata. May 30, 1996 at the Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN.

On distinguishing knots. April 11, 1997 a tthe M.A.A. meeting, Iowa State University, Ames, IA.

Studies of some non-zero-sum matrix games using a theory of moves. April 18, 1998 at M.A.A. meeting, Luther College, Decorah, IA.

Building phylogenetic trees based on minimizing inconsistencies among the trees for quartets of taxa. Poster June 22, 1998 at Society of Systematic Biologists, Vancouver, B.C.

Axioms for the outcomes of negotiation in matrix games. July 22, 1998 at International Conference on Game Theory, Stony Brook, NY.

A higher order parsimony method for quartets that reduces long-branch attraction. June 26, 1999 at Evolution '99, University of Wisconsin, Madison, WI.

Error correction for the phylogenetic trees of quartets. November 4, 2000 at University of Iowa and Iowa State University Joint Bioinformatics Workshop, Iowa City, IA.

Error correction for the phylogenetic trees of quartets. Poster June 27, 2001 at Evolution 2001, Knoxville, Tennessee.

Generalizing quartet methods to various numbers of taxa using minimum evolution. Poster July 1, 2002 at Evolution 2002, University of Illinois, Urbana, Illinois.

Reliable functions to build phylogenetic trees using minimum evolution. April 5, 2003 at Iowa MAA meeting, University of Northern Iowa, Cedar Falls, Iowa.

Minimum evolution is less robust in theory than neighbor-joining. June 23, 2003 at Evolution 2003, California State University at Chico, Chico, California.

Building supertrees using distances. April 17, 2004 at Iowa MAA meeting, Central College, Pella, Iowa.

Coevolution and Tartarus. (joint work with Dan Ashlock and Nicole Leahy). CEC2004. (Congress on Evolutionary Computation). Portland, Oregon June 20-23, 2004.

Building supertrees using distances. Poster July 6, 2004 at Phylogenetic Combinatorics and Applications 2004, Uppsala, Sweden.

Dan Ashlock, Kenneth M. Bryden, Steven Corns, and Stephen Willson. A taxonomy of evolutionary computation problems. November 8, 2004 at ANNIE 2004 (Artificial Neural Networks in Engineering) in St. Louis.

Reconstructing genomes in the presence of hybridizations. April 8, 2006 at Iowa Section MAA meeting, Ames, Iowa.

Using Distances to Reconstruct Evolutionary History, April 21, 2006 at North Central Section MAA meeting, Minnesota State University at Mankato, Minnesota (invited plenary talk, expenses paid).

Reconstruction of hybrid networks from distances between leaves, June 25, 2006 at Evolution 2006, State University of New York at Stony Brook, Stony Brook, NY.

On the mathematics of juggling. April 14, 2007 at Iowa Section MAA meeting, Drake University, Des Moines, Iowa.

Restrictions on meaningful phylogenetic networks. September 4, 2007 at EMBO Workshop on Current Challenges and Problems in Phylogenetics, Isaac Newton Institute, Cambridge, U.K.

Reconstruction of certain normal networks from the genomes at leaves. October 9, 2007 at Isaac Newton Institute, Cambridge, UK.

Robustness of supertree methods for reconciling dense incompatible data. October 23, 2007 at Phyloinformatics Workshop, e-Science Institute, Edinburgh, Scotland (hour invited plenary talk).

Reconstruction of certain phylogenetic networks from the genomes at leaves. December 20, 2007 at Workshop on Future Directions in Phylogenetic Methods and Models, Isaac Newton Institute, Cambridge, UK.

Reconstruction of phylogenetic networks from data at the leaves. June 22, 2008 at Evolution 2008, University of Minnesota, Minneapolis, MN.

Other talks

What are Fractals? Public talk for the art exhibit "American Fractals" at the Blanden Memorial Art Museum, Fort Dodge, Iowa, January 27, 2002.

Some mathematical issues in reconstructing evolutionary history from DNA. University of St. Thomas, St. Paul, MN, February 20, 2002.

Finding supertrees using distance methods, Institute for Mathematics and its Applications, Minneapolis, MN, October 15, 2003. (invited)

Some mathematical issues in reconstructing evolutionary history from DNA. Truman State University, Kirksville, MO. November 10, 2004.

Some mathematical issues in reconstructing evolutionary history from DNA. Augsburg College, Minneapolis, MN.. September 28, 2005.

Research Proposals

(1) Applications of cellular automata to crystal growtb
Principal investigator: S.J. Willson
Dates: June 1, 1978 - May 31, 1979
Budget: $7,680
National Science Foundation
Funded

(2) Proposal to Pioneer Hi-Bred: Sensitivity studies in phylogenetic analysis using quartets with error correction to relate ESTs in maize
September 1999
Principal investigators: S.J. Willson, P. Schnable
Not funded

(3) Miller Proposal: A Proposal for the Development of an Undergraduate Course in Bioinformatics
January 2001
Principal investigators: D. Ashlock, S. Willson
Not funded

(4) ISU MCTP: Promoting Graduate Study in the Mathematical Sciences
Budget: $1,790,248
NSF
Leslie Hogben, PI; coPI: J. Peters, P. Sacks, S. Willson, Z. Wu
Submitted May 2006
Not funded.

(5) ISU MCTP: Promoting Graduate Study in the Mathematical Sciences
Budget: $1,083,522
NSF
Leslie Hogben, PI; coPI: J. Peters, P. Sacks, S. Willson, Z. Wu
Submitted May 2007
Not funded.

Refereeing

Referee for

Physica D 1983, 1986, 1989, 1990 (2)
IEEE Transactions on Comptuer 1984, 1986
SIAM Journal on Computing 1980
Mathematical Systems Theory 1978
Discrete and Computational Geometry 1985
College Mathematics Journal 1990, 1992, 1995, 1997
Complex Systems 1994
Ars Combinatoria 1995

Mathematical Programming 1995, 1996
Games and Economic Behavior 1996
Discrete Applied Mathematics 1998, 1999, 2003
Molecular Phylogenetics and Evolution 1999
Molecular Biology and Evolution 2000, 2006
Systematic Biology 2002
Journal of Parallel and Distributed Computing 2003
Kluwer Academic's "Computational Biology" book series 2003
Annals of Combinatorics 2004
BioSystems 2005
Journal of Mathematical Biology 2005
Conflict Management and Peace Science 2005
Journal of Peace Research 2006
Bioinformatics 2007 (2), 2008
IEEE/ACM Transactions on Computational Biology and Bioinformatics 2007, 2008 (3)
BMC Bioinformatics 2008 (2)
RECOMB 2008
Transactions on Evolutionary Computation 2008

Reviewer for

Air Force 1984
Petroleum Research Fund 1988
American Chemical Society 1983
W.H. Freeman 1989, 1990
John Wiley 1988
Research Council of Canada 1989
NSF 1991, 2007 (2), 2008 (2)
Harper and Row 1991
Harper Collins 1991
Wm. C. Brown 1992
Math Reviews 1999 (3), 2000 (4), 2001 (5), 2002 (1), 2005 (4), 2006 (1), 2007 (2), 2008 (7)
Netherlands Organisation for Scientific Research (NWO) 2008

Seminars

Speaker in seminars at ISU on
- differentiable dynamics
- knot theory
- convex analysis
- chaotic dynamics (1986-87, 1987-88)
- combinatorial knot theory (1988-89, 1989-90)
- combinatorics (1990-91, 1991-92)
- mathematical biology (1991-92, 1993-94, 1994-95, 1996-97, 1997-98, 1998-99)
- algebra and combinatorics (1993-94, 2001-02)
- artificial life (1993-94, 1994-95, 1996-97)
- complex adaptive systems (2000-2001)
- probability theory (November 5, 2008)
- mathematics colloquium (September 16, 2008)

Discrete Math/Theory of Computing

Some properties of the Aho supertree (March11, 2002)
Building supertrees using distances (March 26 and April 2, 2004)
Reconstructing phylogenetic networks from distances between leaves (April 10, 2006)

Computational Biology Lab seminar

Unique solvability of certain hybrid networks from their distances. (April 8, 2005)
Reconstruction of phylogenetic networks from data at their leaves. (October 23, 2008)

BCB seminar

Building supertrees using distances (November 11, 2005)

Graduate Student Seminar

Mathematical Organizations (March 8, 2006)
Some Mathematical Problems in Phylogenetics (April 18, 2007)

Special

BCB Summer Institute, "Consensus trees and supertrees," June 13, 2006

Teaching

Year	Semester	Courses Taught (number responding: evaluation)	
	Evaluations are scored with 5.0 best and 1.0 worst		
1976-77	Fall	M120 (4.5)	M 537 (5.0)
	Winter	M131 (4.6)	M 538 (5.0)
	Spring	SHRI	
1977-78	Fall	M120 (4.4)	M 321 (4.3)
	Winter	M121 (4.7)	M 322 (4.6)
	Spring	M105 (3.6)	M 411 (4.6)
For subsequent evaluations, a new questionnaire was used with 1.0 best and 5.0 worst.			
1978-79	Fall	M120 (1.7)	M 534 (1.2)
	Winter	M131 (1.3)	M 535 (1.0)
	Spring	SHRI	M 536 (1.0)
1979-80	Fall	M120 (1.7)	M 321 (1.4)
	Winter	M121 (1.5)	M 213 (1.4)
	Spring	M122 (1.3)	M 321 (1.4)
1980-81	Fall	M223 (1.3)	M 406 (1.5)
	Winter	M121 (1.8)	M 407 (1.4)
	Spring	SHRI	M 408 (1.4)
1981-82	Fall	M140A (2.65)	M 307 (1.55)
	Spring	M165 (1.51)	M 308 (1.57)

1982-83	Fall	M 105 (33:2.03)	M 165 (36:1.25)	
	Spring	M 308 (18:1.50)	M 166 (39:1.44)	
1983-84	Fall	M 176 (18:1.39)	M 481 (30:1.47)	
	Spring	M 270 (8:1.25)	M 471 (24:1.63)	
1984-85	Fall	M 371 (10:1.20)	M 307 (28:1.79)	
	Spring	M 385 (24:1.46)	SHRI	
1985-86	Faculty Improvement Leave at University of Toronto			
1986-87	Fall	M 151 (103:2.35)	M151 (87:2.55)	
	Spring	M 265 (1.58)	M 304 (1.38)	
1987-88	Fall	M 105 (27:2.11)	M 270 (16:1.06)	M 491
	Spring	M 314X (1.14)	M 371(13:1.15)	
1988-89	Fall	M 166 (23:1.41)	M 371 (10:1.10)	
		UST 321C	M 490H	
	Spring	M105 (19:1.68)	M 431X (11:1.36)	
1989-90	Fall	M 105 (110:1.72)	M 307 (19:1.89)	
	Spring	M1 65 (17:1.47)	M 431X (16:1.13)	
	Summer	M 699		
1990-91	Fall	M 270 (13:1.08)	M 537 (3:1.00)	M 590
	Spring	M 371 (10:1.40)	M 538 (2:1.00)	
1991-92	Fall	M 105 (89:1.64)	M 166 (21:1.48)	
	Spring	M 105 (58:2.09)	M 439 (10:1.40)	
		UST 290H		
1992-93	Fall	M 268 (19:1.74)	M 599	
	Spring	M 599		
1993-94	Fall	M 268 (9:1.22)		
	Spring	M 439 (12:1.08)		
1994-95	Fall	M 268 (13:1.90)		
	Spring	M 105 (96:1.67)		
1995-96	Fall	M 268 (12:1.60)		
	Spring	FIL		
1996-97	Fall	M 105 (86:1.70)	M 534 (12: 1.17)	
	Spring	M 105 (50:1.55)	M 537 (5: 1.20)	
1997-98	Fall	M 165 (20: 1.60)	M 307 (20:1.40)	M490(1)
	Spring	M 166 (25: 1.38)	M 439 (8: 1.13)	
1998-98	Fall	M 105 (76:1.64)	M 265 (20:135)	
	Spring	M 307(video) (28:1.43)		

For subsequent evaluations, a new questionnaire was used with 5.0 best and 1.0 worst.

1999-00	Fall	M 105 (75: 4.13)	M 165 (61: 4.36)
	Spring	M 307(video)(29: 4.24)	
		M 290H(1)	M 439 (10: 4.70)
2000-01	Fall	M 181 (29: 4.69)	M 266 (26: 4.62)
	Spring	M 265 (50: 4.58)	M 301 (20: 4.75)
2001-02	Fall	M 265 (103: 4.50)	M 307 (34: 4.65)
		M 490 (1)	
	Spring	M 182 (24: 4.63)	M 439 (10: 4.80)
		M 590 (2)	
2002-03	Fall	M 165 (117: 4.56)	M 301 (20: 4.75)
	Spring	M 182 (21: 4.29)	M 537 (4: 5.00)
2003-04	Fall	FPDA at IMA	
	Spring	M 181 (39: 4.49)	M 439 (6: 5.00)
2004-05	Fall	M 182 (10: 4.80)	M 365 (22: 4.82)
	Spring	M 181 (47, 36: 4.50)	M 537 (6, 5: 5.00)
2005-06	Fall	M 265H (18; 14: 4.57)	M 621 (4; 5: 5.00)
	Spring	M181 (42; 26:4.62)	M 365 (11; 6: 4.83)
		M 490 (1)	
2006-07	Fall	M 165 E2(36; 28: 4.50)	M 165 G2(35; 27: 4.44)
	Spring	M 182 (31; 19: 4.32)	M 622(6; 6: 4.83)
2007-08	Fall	FPDA in Cambridge, U.K.	
	Spring	M 267G(34; 29; 4.66)	M439(11; 9; 4.67)
		M 590 (2)	
	Summer	M 590(1)	
2008-09	Fall	M 266 (32)	M 621 (10)
		BCBio110X (7)	M 590 (1)
	Spring	M 267	M 622
		M 699	

Undergraduate Advisees:

Fall 1990: 12
Fall 1992: 8
Fall 1994: 3
Fall 1996: 2
Fall 1997: 6
Fall 1998: 6
Fall 1999: 4
Fall 2000: 20
Fall 2001: 34
Fall 2002: 38
Fall 2003: 36

Fall 2004: 39
Fall 2005: 20
Fall 2006: 26
Fall 2007: 0 (on FPDA)
Spring 2008: 25
Fall 2008: 25 Math advisees+ 3 BCBio advisees

Master's Committee or Creative Component Supervisor

Allen, Charles	Chem. Eng	Member	1982
Dawson, Pat	Geology	Member	1984
Devin, Jeanne	Statistics	Member	1981
Dougherty, Robert	Physics	Member	1982
Pierson, Bruce	ESM	Member	1984
Desirazu, Narenda	Math	Member	1988
Park, In Ja	Math	Member	1988
Shih, Chun-Liang	Math	Member	1989
Kirpes, Roger	Math	Supervisor	1993
Lee, Thomas	Physics	Member	1992
Betsinger, Douglas	Math	Supervisor	1994
Hamilton, Brent	Math	Member	1997
Olson, Brian	Math	Supervisor	1999
Reksosamudro, Henry	IE	Member	1997
Vanichanuwat, Korakoch	IE	Member	1997
Miles, Kevin M.	ECpE	Member	1998
Wu, Shiquan	Math	Member	2000
Flemisch, Bernd	Math	Member	2001
Doran, Jeffrey	Math	Member	2002
Bibi, Tauqir	Math	Member	2002
Dagli, Mehmet	Math	Member	2003-04
Ayala, Jose	Math	Member	2007
Tobin, Wes	Astro	Member	2008

Ph.D. Committee or Thesis Supervisor

Belehrad, Robert	Physics	Member	1980
Chang, Van	Physics	Member	1979
Eslami, Esfandiar	Math.	Member	1981
Felker, David	ChemE	Member	1983
Fickle, Robert	Physics	Member	1981
Goodrich, Loren	Physics	Member	1981
Gustafson, John	Math	Member	1982
Hess, Bret	Physics	Member	1984
Johnson, Charles	ESM	Member	1983
Keng, Deng	Math	Member	1986
Tantawy, Abdalla S.	Math	Member	1986
Minachi, Ali	AeroE.	Member	1986
Medepalli, Anand	Math	Member	1992
Panigrahi, Suranjan	AgE	Member	1991
Rogotzke, Kathy	Math	Member	1991
Palasinska, Katarzyna	Math	Member	1992
Fuad, Simonthy	Math	Member	1993
Charmandaris, Vassilios	Physics	Member	1995

Bhagavatula, Sandhya	Physics	Member	2000
Ruehlander, Marc	Physics	Member	2001
Wu, Shiquan	BCB	Member	2004
Benson, Tammy	BCB	Member	2004
Piaggio, Raul	BCB	Member	2004
Kim, Eun-Youn	Math	Member	2005
Chen, Duhong	Com S	Member	2005
Hilgemann, Mike	Math	Member	2007
Wells, Andrew	Math	Member	2007
Dong, Jianrong	Com S	Member	2007
Drignei, Mihaela	Math	Member	2008
Bickner, Devin	Math	Supervisor	2009

Work in curriculum development:

Developed course Math 439, "Mathematics of Fractals," 1989

Major changes in Math 105 (1991), Math 181 (2000, 2004, 2005, 2006), Math 182 (2002, 2003, 2004, 2005, 2007) including written lecture notes, written web files on biological topics, and many supplementary problem sets. These written lecture notes are currently the sole textbooks for Math 181 and 182.

Service:

Departmental:

Coordinating and Policy Committee 1982-84, 1987-90
Chair, Coordinating and Policy Committee 1989-90.
Advisory Committee, 1999-2002, 2002-03
Coordinator of math courses for majors, 1987-89
Computer Committee 1986-87
Graduate Committee 1990-92
Chair, Graduate Committee 1991-92
Qualifying exam committee member 1977-81, 1986-87, 1988-89 (chair), 1989-90, 1990-93
Promotion and tenure subcommittee member 1988-89, 1990-91
Chair, Awards, Endowment, and Development Committee 1996-98
Committee on Evaluation of Teaching for Promotion and Tenure 1998
Math/Engineering Liaison Committee 1999
Chair, Advisory Committee 2001-02
Catalog editor, 2001-02, 2003-04, 2005-06
Calculus curriculum and textbook search committee 2002-03
DEO Review Committee 2004
Chair, Curriculum Committee 1980-82
Undergraduate Committee 1982-83, 1997-2000, 2001-04, 2004-07
Chair, Undergraduate Committee, 1997-99, 2001-02, 2004-05, 2005-06, 2006-07
Chair, IRT for assistant professors 1988-89
IRT for Sung Yell Song, 1999
IRT for Scott Hansen, 2004-05
IRT for Maria Axenovich, Fall 2005
Recruiting visits for graduate students: 2002, 2004, 2005
Committee to recommend faculty release time: 2004
Chair, Committee on promotion to senior lecturer: 2004-2005
Chair, Search Committee on Combinatorics: 1982-83, 1983-84,

1984-85, 1986-87, 1987-88, 1989-90
Chair, Search Committee for Bioinformatics, 1999-2000
Chair, Initial Hiring Committee 2002-03
Hiring Committee, 2006-07
Education Hiring Committee, 2007-2008
Education Hiring Committee, 2008-2009
Achievement Web Page Committee, Fall 2008 -
Chair, Awards Committee 2008-09

University:

Mathematics Department Representative to Faculty Senate, 1988-91
Faculty Senate liaison with University Committee on Disabilities, 1988-91
Animal Care Committee 1990-92
LAS Honors Program Committee, 1998-2001
Member, Policy Committee for Baker Center for Bioinformatics and Biological Statistics, 2000-2001
ISU Phi Beta Kappa Membership Committee 1997-02
Vice-President, ISU chapter of Phi Beta Kappa 1999-2000
President, ISU chapter of Phi Beta Kappa 2000-2001
Board of Directors, ISU Carver Academy, 2000-2002
Mentoring Committee, ISU Carver Academy, 2001-02
LAS Promotion and Tenure Committee, 2001-02, 2002-03
Chair, Curriculum Committee for Bioinformatics and Computational Biology, 1998-2001, Fall 2002
Curriculum Committee for Bioinformatics and Computational Biology, 2001-03, Spring 2006-2007, 2007-2008, 2008-2009
Goldwater Scholarship Nomination Committee 2001-2002
Affiliate Member, ISU Carver Academy, 2002-03
Committee to form BCB Undergraduate Major, 2005-07
LAS Committee on Calculus, 2006-07
Chair, undergraduate BCBio Curriculum Committee and director, undergraduate BCBio interdisciplinary program, 2007-2010
Mathematics representative to Experience ISU, July 21, 25, 28, 2008

Other university activities:

Faculty adviser to Pi Mu Epsilon (and Mathematics Club), 1987-2009.
Coach for ISU team for COMAP Mathematical Contest in Modeling, 1993, 1994, 1995, 1998, 1999, 2000, 2002, 2006 (team received first place S.I.A.M. national award, 1995; honorable mention 2002)
Drive van to take students to the Iowa Intercollegiate Math Contest, April 13, 2002 (University of Iowa); April 5, 2003 (UNI); April 17, 2004 (Central College), March 4, 2006 (Luther), March 8, 2008 (Drake)
Mentor for Ryan Zerr, Preparing Future Faculty program, Fall 2002
Transfer credit evaluator 2002-05
CoDirector of the Mathematics REU, Summer 2003
Mentor for 2 students in the Mathematics REU, Summer 2003
Course supervisor for Math 181/182 2004-09
Mentor for Jacob Manske, Preparing Future Faculty program, 2006-07
Mentor for Alex Roitershtein, Fall 2008 -

Mathematics community:

M.A.A. Iowa Speaker, 1975-76
Treasurer, Iowa Chapter of SIAM 1982-83
Vice President, Iowa Chapter of SIAM, 1983-84
President, Iowa Chapter of SIAM, 1984-85
Chair-Elect, Chair, Past Chair for Iowa Section of the M.A.A., 1996-99.
Liaison for ISU of Mathematical Association of America 1996-2008
Local organizer for Iowa Intercollegiate Math Contest, April 16, 2005
February 28, 2009
Grader for Iowa Intercollegiate Math Contest 2002, 2003, 2004, 2006, 2008
Chair, Nominating Committee for Iowa Section of M.A.A. 2006
Nominating Committee for Iowa Section of M.A.A. 2008