VITA
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Department of Mathematics and Statistics
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RESEARCH INTERESTS:

Deterministic and stochastic mathematical modeling, analysis, and simulation in applications to populations, ecosystems, epidemiology, and immunology.

EDUCATION:

Ph.D., Mathematics, 1981, University of Tennessee, Knoxville, Advisor: T. G. Hallam.

M.S., Mathematics, 1978, University of Tennessee, Knoxville, Advisors: C. E. Clark and D. L. DeAngelis.

B.A., Mathematics, 1975, College of St. Scholastica, Duluth, Minnesota.

PROFESSIONAL EXPERIENCE:

Visiting Scholar, Department of Mathematics, University of Kelaniya, Sri Lanka June-July, 2017.

Short Term Visit, National Institute for Mathematical and Biological Synthesis, December 2012.

Paul Whitfield Horn Professor, Department of Mathematics and Statistics, TTU, 2010-current.

Long Term Visitor, Mathematical Biosciences Institute, Ohio State University, Spring 2006, Spring 2012.

Adjunct Professor, Institute for Environmental and Human Health, TTU, 1999-current.

Assistant 1985-91, Associate 1991-98, Professor 1998-current, Department of Mathematics and Statistics, TTU.

Assistant Professor, Department of Mathematics, University of North Carolina at Asheville, 1982 - 1985.

Visiting Assistant Professor, Department of Mathematics, University of Tennessee, Knoxville, 1981-1982.

Research/Teaching Assistant, Department of Mathematics, University of Tennessee, Knoxville, 1975-1981.

Technical Assistant, Environmental Sciences, Oak Ridge National Lab, Oak Ridge, Tennessee, 1977.

EDITORIAL BOARD, Current Service:

Senior Advisory Board, *Natural Resource Modeling*, 2007-current.

Editorial Board, *Journal of Difference Equations and Applications*, 2007-current.

Editorial Board, *Journal of Biological Dynamics*, 2008-current.

Editorial Board, *Infectious Disease Modeling*, 2017-current.

EDITORIAL BOARD, Past Service:

Editorial Board, *Journal of Theoretical Biology*, 2006-2017.

Editorial Board Advisor, *Journal of Biological Systems*, 2012-2014.

Editorial Board, *Mathematical Biosciences and Engineering,* 2012-2014.

Editorial Board, *Mathematical Biosciences,* 2005-2013.

Editorial Board, *SIAM Journal of Applied Mathematics*, 2007-2010.

Book Review Co-Editor, *Journal of Difference Equations and Applications,* 2004 - 2010.

Editorial Board, *Discrete and Continuous Dynamical Systems Series B*, 2002 - 2007.

Associate Editor, *Journal of Mathematical Systems, Estimation, and Control,* 1993 - 1996; Communicating Editor, 1996 - 1998.

HONORS and AWARDS:

1. SIAM Fellow, 2016.
2. AWM-SIAM Sonia Kovalevsky Lecturer 2015, ICIAM-2015, Beijing, China.
3. SIAM Graduate Mathematics Professor of the Year, Student Chapter TTU, 1997-1998, 2014-2015.
4. Kappa Mu Epsilon Mathophile Award, Kappa Mu Epsilon, Student Chapter TTU, 2014-2015.
5. Kappa Mu Epsilon Mathematics Professor of the Year, Student Chapter TTU, 2011-2012.
6. Paul Whitfield Horn Professor, TTU, 2010-current.
7. Barnie E. Rushing, Jr. Faculty Distinguished Research Award TTU, 2007.
8. Taylor & Frances Best Paper Award 2005 for "SIS epidemic models with multiple pathogen strains", *Journal of Difference Equations and Applications* (2004) with N. Kirupaharan and S. M. Wilson.
9. Outstanding Faculty Mentor, McNair Scholars Program TTU, 1999.

GRANTS FUNDED:

1. Texas Tech University, State Organized Research Fund Grant, "Mathematical Models for Endangered Species". 9/1987 - 8/1988, $1000. PI: L. Allen.
2. National Science Foundation. "Development and Analysis of Three-Species Epidemic Models". 7/1992 - 12/1994, $17,116. PI: L. Allen.
3. Texas Tech University, "Weed Dispersal". PI: L. Allen, E. Allen. 5/1993 - 8/1993, $1384.
4. Texas Tech Graduate School Summer Research Awards, Faculty Investigator for Doug Hallam (1988); David Thrasher (1995); Robert McCormack (2004). Research Incentive Award for McNair Scholars Program for Ralynn Ernest (1998).
5. Texas Tech University, "Undergraduate Mathematics Course for Biological Sciences Students". 1996, $2009. PI: L. Allen
6. National Science Foundation. "Development and Analysis of Models for the Spread and Control of Weeds and Infectious Diseases." PI: L. Allen, E. Allen and M. McGinley. 7/1996 - 8/2000, $88,500.
7. Texas Tech University, Interdisciplinary/Multidisciplinary Seed Fund Project. "Epidemic Models Applied to the Study of Disease Evolution in Plant Pathosystems". PI: L. Allen, R. Strauss. 1/2000-6/2001, $11,600.
8. Texas Higher Education Coordinating Board, Advanced Research Program. "Occurrence, Frequency, Duration, Size and Spread of Epidemics in Stochastic Structured Models". 01/2000-08/2002, $33,618. PI: L. Allen.

9. National Science Foundation. "Dynamics and Evolution of Emerging Diseases with Applications to Amphibians". PI: L. Allen, Co-PI: E. Allen, S. McMurry, M. San Francisco, L. Rollins-Smith, L. Smith. 6/2002-6/2007, Amount: $915,000.

10. Fogarty International Center, NIH-NSF Ecology of Infectious Diseases. "The Impact of Rapid Anthropogenic Land Cover Change in the Chaco and Interior Atlantic Forest in Paraguay on Hantavirus Ecology". PI: C. Jonsson, Co-PI: R. Owen, L. Allen, Y. Chu, D. Goodin, S. Hutchinson, E. Pontelli, D. Ranjan, S. Tran, M. Almiron. 3/2004-4/2008, $1,857,996.

11. Texas Higher Education Coordinating Board, Advanced Research Program. "Metapopulation Models for the Playa Lakes of the Southern High Plains". PI: L. Allen, Co-PI: E. Allen, S. McMurry, L. Smith. 5/2006-5/2008, $47,106.

12. National Science Foundation. "Stochastic Metapopulation Models Applied to Amphibians on the Southern High Plains" and REU Supplement. PI: L. Allen, Co-PI: E. Allen, S. McMurry, and L. Smith. 9/2007-8/2011, $481,774.

13. MAA PREP. "Mathematical Modeling in Population Biology and Epidemiology", PI: S. Jang. Co-PI: L. Allen and L. Roeger. Summers 2009 and 2010.

14. Mathematical Biosciences Institute. Fourth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems. PI: L. Allen, Co-PI: E. Allen, B. Ghosh, A. Ibragimov, N. McIntyre, S. Jang, L. Roeger and R. Strauss. $5000. 9/01/2013-8/31/2014.

15. National Science Foundation. "Fourth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems". PI: L. Allen, Co-PI: E. Allen, N. McIntyre, S. Jang, and L. Roeger. Senior Personnel: A. Ibragimov and R. Strauss. $19,000. 9/01/2013-8/31/2014.

16. National Science Foundation. "Collaborative Research: Modeling Immune Dynamics of RNA Viruses In Reservoir and Nonreservoir Species". PI: L. Allen and C. Jonsson. Co-PI: A. Trindade and M. Kosiewicz. $349,803. 9/01/2015-8/31/2018.

17. American Institute of Mathematics, AIM SQuaRE: "Superspreaders and Their Role in Epidemics: a Stochastic Modeling Approach". L. Allen, C. Edholm, A.L. Murillo and X. Wang. Travel and local accommodations. 1/28/2019-2/1/2019.

POST-GRADUATE STUDENT Supervision:

1. Wenjing Zhang, Teaching Postdoctoral Fellow, 2016–2017.

2. Fan Bai, Research Postdoctoral Fellow, 2016–2018.

GRADUATE STUDENT Supervision:

Ph.D. Students:

1. Jacob Kesinger. Dissertation: "Mathematical Models for Host-Pathogen Genetics in Plant Pathosystems", Ph.D. December 2001. Employed at National Security Agency.

2. Nadarajah Kirupaharan. Dissertation: "Deterministic and Stochastic Epidemic Models with Multiple Pathogens", Ph.D. August 2003. Associate Professor at Borough of Manhattan Community College, The City University of New York.

3. Keith E. Emmert. Dissertation: "Deterministic and Stochastic Discrete-Time Epidemic Models with Applications to Amphibians". Ph.D. August 2004. Associate Professor at Tarleton State University.

4. Robert McCormack. Dissertation: "Multi-host and multi-patch mathematical models of disease emergence with applications to hantavirus in wild rodent populations". Ph.D. August 2006. Employed at Aptima, Inc., Boston.

5. Curtis L. Wesley. Dissertation: "Discrete-Time and Continuous-Time Epidemic Models with Applications to the Spread of Hantavirus in Wild Rodents and Human Populations", Ph.D. August 2008. Associate Professor at LeTourneau University.

6. Amy Drew Ekanayake. Dissertation: "Stochastic Metapopulation Models and Watershed Estimates for Playas on the Southern High Plains", Ph.D. August 2009. Associate Professor at Western Illinois University.

7. Don Kumudu Mallawa Arachchi. "Stability and Permanence in Gender- and Stage-Structured Discrete-Time Models for the Boreal Toad in Single or Multiple Habitats, and a Stochastic Model for the Hydroperiod of Playas on the Southern High Plains", Ph.D. December 2009. Senior Lecturer at University of Kelaniya, Sri Lanka.

8. Glenn Lahodny, Jr. "Persistence and extinction of disease in stochastic epidemic models and dynamically consistent discrete Lotka-Volterra competition models", Ph.D. August 2012. Co-advisor: L. Roeger. Instructional Assistant Professor at Texas A&M University.

9. Sukhitha Vidurupola. "Mathematical Models for Bacteriophage Dynamics Applicable to Phage Therapy", Ph.D. August 2013. Assistant Professor at Rogers State University, Oklahoma.

10. Krystin Steelman Huff. "Modeling the Early Stages of Within-Host Viral Infection and Clinical Progression of Hantavirus Pulmonary Syndrome", Current Ph.D. Student. Co-Chair: Edward Allen. Expected Graduation: May 2018.

11. Aadrita Nandi. "The Impact of Population Heterogeneity in Stochastic Models on the Emergence or Re-emergence of Infectious Diseases". Current Ph.D. student.

12. Nipa Kaniz Fatema. Current Ph.D. student. Co-Chair: Sophia Jang.

Master's Students:

1. Douglas Hallam. Report: "A mathematical model of the population dynamics of the Brazos water snake", M.S., December 1988.

2. Martha Jones. Report: "A deterministic mathematical model of a measles epidemic", M.A., May 1990.

3. Mary K. Arthur. Report: "Development and mathematical analysis of a model for the grape vine and apple twig borer system", M.A., December 1991.

4. Dingyuan Lu. Thesis: "Statistical Analysis of adolescent behaviors: sleep behavior, self-esteem, and suicidal ideation", M.S., August 1993. Co-Advisor: T. Lewis.

5. Deanna Dick. Thesis: "Development and analysis of a three-species epizootic model", M.S., December 1993. Co-Advisor: C. Martin.

6. Kim McGowan. Thesis: "Models for Sarcoptic Mange in *Canis Latrans*", M. S., May 1994. Co-Advisor: C. Martin.

7. Paul Dacus. Thesis: "Statistical Analysis of Juvenile Delinquents Behavior", M. S., May 1994. Co-Advisor: T. Lewis.

8. Sudasana Ponweera. Report: "Development and Analysis of a Mathematical Model of Weed Dispersal and Control", M.S., December 1994. Co-Advisor: E. Allen.

9. Phyllis Cormier. Thesis: "Modeling Epizootics in Time and Space", M.S., December 1994.

10. Ana Paula Chamon. Report: "The Dynamics of a Plankton Model with Diffusion", M.A., May 1995.

11. Kristin Sumpter. Thesis: "The Dynamics of Some Epidemic Models", M.S., July 1995.

12. David Thrasher. Thesis: "Optimal Vaccination Strategies for the Control of Varicella and Herpes Zoster", M.S., December 1996.

13. David Atkinson. Thesis: "Mathematical Models for Plant Competition and Dispersal," M.S., May 1997.

14. Amy Burgin. Thesis: "Deterministic and Stochastic Discrete-Time Epidemic Models with Spatial Considerations", May 1998.

15. Ruwan Ratnayake. Thesis: "Spread of Disease in an Age-Structured Model with Applications to Rabies", M.S., May 1998.

16. Jacob Kesinger. Thesis: "Integrodifference Equations Applied to Plant Competition and Control," M.S., May 1998.

17. Garry Block. Thesis: "Deterministic and Stochastic Nonlinear Age-Structured Models", M.S., December 1998.

18. Penelope Misquitta. Thesis: "Duration, Size, and Occurrence of an Epidemic in Single and Multi-Species Stochastic SI and SIS Models", M.S., May 1999.

19. Sarah Stinnett. Thesis: "Stochastic Models for the Time to the Most Recent Common Ancestor", M.S., May 1999.

20. Niranjala Perera. Thesis: "Deterministic and Stochastic Models of Virus Dynamics", M.S., December 2003.

21. Kiyomi Kaskela. Thesis: "Deterministic and stochastic structured population models", M.S., August 2004.

22. Robert McCormack. Thesis "Deterministic and stochastic host-pathogen genetics models", M.S., August 2004.

23. Amy Drew. Thesis: "An investigation of climatic and geographic factors on the growth and spread on amphibian populations in Australia", M.S., December 2004. Co-Advisor: E. Allen.

24. Yaji Xu. Thesis: "Analysis and modeling of an influenza epidemic with drug resistance", M.S. August 2006.

25. Chandrani Banerjee. Thesis: "The dynamics of mathematical models for Machupo viral infection in rodent populations." M.S. December 2007.

26. Yuan Yuan. Thesis: "Deterministic and stochastic models for intra-host virus and immune system dynamics", M.S. August 2010.

27. Sukhitha Vidurupola. Thesis: "Stochastic models for early viral infection within a host", M.S. December 2010.

28. Chelsea Lewis. Thesis: "Mathematical models with antibody and cytotoxic T lymphocyte responses due to hantavirus infections in rodents and humans." M.S. August 2011.

29. Kristin Yearkey. Report "A stochastic two patch model for disease propagation", M.S. August 2011. Co-Advisor: V. Howle.

30. Pooya Aavani. Thesis: "Ordinary and delay differential equation models of viral infection with application to HIV and hepatitis C virus", M.S. August 2012. Report: "The Role of CD4 T Cells in immune system activation and viral reproduction in a model for HIV infection." M.A. November 2014.

31. Mary Hebert. Thesis: "Plant-vector-virus models with vector aggregation applied to cassava mosaic virus." M.S. August 2014.

32. Nathan Conroy. Report: "Comparing extinction probabilities of Galton-Watson processes using analytic methods." M.A. May 2015.

33. Kayla Comeaux. Thesis: "An analysis of deterministic and stochastic models for within-host and between-host disease dynamics coupled throughout the environment." M.S. December 2015.

34. Gregory McKinney. Report: "Continuous-time Markov chain of an SIRV model that exhibits backward bifurcation", M.S. May 2016.

35. Annabel Meade. Report: "Within-Host Models for Hantavirus Immune Response". M.S. August 2017.

UNDERGRADUATE STUDENT Supervision:

1. Pamela Lockwood. Senior Honors Project: "Models for the spread of disease in predator-prey systems".1993.

2. Michael Williams. Senior Honors Project: "Public-key and private-key cryptography", 1996. Awarded a Mathematical Spectrum Prize for his contribution to Volume 31 of the magazine.

3. Ralynn Ernest. Ronald E. McNair Scholar. Research Project: "The impact of long-range dispersal on the rate of spread in population models", 1998.

4. Billy Duke. Ronald E. McNair Scholar. Research Project: "Study of Stochastic Spatial Epidemics", 2000.

5. David Flores. Research Project: "Spread of rabies in canine populations", 2000.

6. Sherri Wilson. Senior Honors Project: "Development, analysis, and numerical simulation of stochastic spatial models to study the spread of an infectious disease", 2001.

7. Jennifer Tang. Research Project: "Simulation of Amphibian Populations on the Llano Estacado", Co-Advisor: E. Allen, 2008-2009.

8. John Fenske. Research Project: "Stochastic Simulation of Playa Hydroperiod", 2010.

9. Kaylee Holloway and Robert Wallette. PRISM Research Project: "Bacteriophage versus antibiotic therapy", 2012-2013.

10. Annabel Offer. PRISM Research Project: "Modeling Hantavirus cytokine activity with stochastic differential equations", 2014-2015.

PUBLICATIONS:

BOOKS:

1. Allen, L. J. S. 2003. *An Introduction to Stochastic Processes with Applications to Biology.* Prentice Hall, Upper Saddle River, N.J. (Second Edition, 2010, CRC Press, Boca Raton, Fl.)

2. Allen, L. J. S. 2007. *An Introduction to Mathematical Biology.* 2007. Prentice Hall, Upper Saddle River, N.J.

3. Allen, L. J. S. 2015. Stochastic Population and Epidemic Models. Persistence and Extinction. Vol. 1.3, Mathematical Biosciences Lecture Series, Stochastics in Biological Systems, Springer.

EDITED VOLUMES:

1. *Difference Equations and Discrete Dynamical Systems. Proceedings of the 9th International Conference.* World Scientific Publishing, 2005. L. J. S. Allen, B. Aulbach, S. Elaydi, and R. Sacker (Editors).

2. Special Issue of *Journal of Biological Dynamics*. Proceedings of a Special Session at the American Mathematical Society Meeting, New Orleans, January 2007. Volume 1, Issue 4, 2007. L. J. S. Allen, S. Jang, L. Roeger (Editors).

3. Special Issue of *Mathematical Biosciences and Engineering*. In honor of the 70th Birthday of Thomas G. Hallam. Volume 5, Issue 4, 2008. A. S. Ackleh, L. J. S. Allen, G. Canziani, S. M. Henson, J. Li, and Z. Ma (Editors).

4. Special Issue of *Journal of Biological Dynamics*. Proceedings of ICMA IV, Texas Tech University, October 2013. Volume 9, Issue 1, 2015. L. J. S. Allen, J. Li, and P. van den Driessche (Editors).

BOOK CHAPTERS/PROCEEDINGS/LETTERS

1. Hallam, T. G. and L. J. Allen. 1982. Diversity and spatial effects on competitive systems. In: *Nonlinear Phenomena in Mathematical Sciences*, V. Lakshmikantham, (Ed.), pp. 15-24, Academic Press, New York.

2. Allen, L., T. Lewis, C. Martin, R. Carpio, M. Jones, M. Stamp, G. Mundel, and A. Way. 1992. Stochastic Analysis of Vaccination Strategies. In: *Stochastic Theory and Adaptive Control,* Lecture Notes in Control and Information Sciences (T. E. Duncan and B. Pasik-Duncan, Eds.), pp. 1-11, Springer-Verlag, New York.

3. Allen, L. J. S., M. K. Hannigan, and M. J. Strauss. 1996. Development and analysis of a mathematical model for a plant-herbivore system. In: *World Congress of Nonlinear Analysts '92*, Proceedings of the First World Congress of Nonlinear Analysts, Tampa, Florida, August 19-26,1992. V. Lakshmikantham (Ed.), Vol. IV, pp. 3723-3732. Walter de Gruyter, Berlin and New York.

4. Allen, L. J. S. and E. J. Allen. 1999. Mathematical models for the dispersal and control of undesirable plants on rangeland. *Proceedings of the Fifth International Conference on Desert Development, Desert Development: The Endless Frontier*, Vol. I, Lubbock, TX, August, 1996, pp. 488-503.

5. Allen, L. J. S. and R. K. Ernest. 2002. The impact of long-range dispersal in population and epidemic models. "Mathematical Approaches for Emerging and Reemerging Infectious Diseases: Models, Methods and Theory." C. Castillo-Chavez, Sally Blower, P. van den Driessche, D. Kirschner, and A-A. Yakubu (Eds.) IMA Vol. 125: 183-197.

6. Allen, L. J. S. and J. C. Kesinger. 2002. Selection in population genetics models of host-pathogen systems. In: *New Trends in Difference Equations*. Proceedings of the Fifth International Conference on Difference Equations, Temuco, Chile, 2000, S. Elaydi, J. López Fenner, G. Ladas, and M. Pinto (Eds.), Taylor and Francis, London and New York, pp. 15-31.

7. Allen, L. J. S., E. J. Allen, and C. B. Jonsson. 2006. The impact of environmental variation on hantavirus infection in rodents. *Contemporary Mathematics Series*, 410, Proceedings of the Joint Summer Research Conference on Modeling the Dynamics of Human Diseases: Emerging Paradigms and Challenges. A. B. Gumel, C. Castillo-Chavez, R. E. Mickens, and D. P. Clemence, Eds. AMS, Providence, RI, pp. 1-15.

8. McCormack, R. K. and L. J. S. Allen. 2006. Stochastic SIS and SIR multihost epidemic models. Proceedings of the Conference on Differential & Difference Equations and Applications, R. P. Agarwal and K. Perera, Eds., Hindawi Pub. Co., pp. 775-786.

9. Allen, L. J. S. 2008. Chapter 3: An Introduction to Stochastic Epidemic Models. *Mathematical Epidemiology*, *Lecture Notes in Mathematics*. Vol. 1945, pp. 81-130, F. Brauer, P. van den Driessche, and J. Wu (Eds.) Springer.

10. Allen, L. J. S. 2012. Branching Processes. In: *Encyclopedia of Theoretical Ecology*. A. Hastings and L. Gross (Eds.) pp. 112-119. University of California Press.

11. Allen, L. J. S. and E. J. Allen. 2014. Deterministic and stochastic SIR epidemic models with power function transmission and recovery rates. *AMS Contemporary Mathematics Series* Mathematics of Discrete and Continuous Dynamical Systems: In honour of the 70th birthday of Ronald E. Mickens. A. Gumel, Ed. 618: 1-15.

12. Allen, L. J. S. 2016. Power law incidence rate in epidemic models. Comment on "Mathematial models to characterize early epidemic growth: A review" by Gerardo Chowell et al. *Physics for Life Reviews*. 18: 98-99.

13. Goodin, D. G., C.B. Jonsson, L. J. S. Allen, and R. D. Owen. 2017. Integrating landscape hierarchies in the discovery and modeling of ecological drivers of zoonotically transmitted disease from wildlife. In: *The Connections Between Ecology and Infectious Disease*. Book series: Advances in Environmental Microbiology. Vol. 5, C. J. Hurst (Ed.) Accepted.

14. Allen, E. J., L. J. S. Allen, and A. Van Fleet. 2017. Some observations on surveying horned lizards in Dickens County, Texas from 1997 to 2017. Submitted to *Phrynosomatics*, the newsletter for the Horned Lizard Conservation Society.

REFEREED PUBLICATIONS:

15. Hallam, T. G., L. J. Svoboda (Allen), and T. C. Gard. 1979. Persistence and extinction in three species Lotka-Volterra competitive systems. *Mathematical Biosciences*, 46: 117-124.

16. DeAngelis, D. L., L. J. Svoboda (Allen), S. W. Christensen, and D. S. Vaughan. 1980. Stability and return times of Leslie matrices with density-dependent survival: Applications to fish populations. *Ecological Modelling*, 8: 149-163.

17. Allen, L. J. S. 1983. Persistence and extinction in Lotka-Volterra reaction-diffusion equations. *Mathematical Biosciences*, 65: 1-12.

18. Allen, L. J. S. 1983. Persistence and extinction in single-species reaction-diffusion models. *Bulletin of Mathematical Biology*, 45: 209-227.

19. Allen, L. J. S. 1985. Fuzzy Sets. *Consortium* The Newsletter of the Consortium for Mathematics and its Applications. Lexington, MA, December 1985, pp. 3,8.

20. Allen, L. J. S. 1986. Fuzzy set theory. *Mathematical Spectrum*, 19: 40-45. Reprinted in *A Mathematical Spectrum Miscellany*. 2000. Applied Probability Trust, pp. 122-127.

21. Allen, L. J. S. 1987. Persistence, extinction, and critical patch number for island populations. *Journal of Mathematical Biology*, 24: 617-625.

22. Allen, L. J. S. 1989. A density-dependent Leslie matrix model. *Mathematical Biosciences*, 95: 179-187.

23. Allen, L. J. S., M. P. Moulton, and F. L. Rose. 1990. Persistence in an age-structured population for a patch-type environment. *Natural Resource Modeling*, 4:197-214.

24. Allen, L., T. Lewis, C. F. Martin, and M. Stamp. 1990. A mathematical analysis and simulation of a localized measles epidemic. *Applied Mathematics and Computation*, 39: 61-77.

25. Allen, L. J. S., M. A. Jones, and C. F. Martin. 1991. A discrete-time model with vaccination for a measles epidemic. *Mathematical Biosciences*, 105: 111-131.

26. Allen, L. J. S. 1991. Discrete and Continuous Mathematical Models of Populations and Epidemics. *Journal of Math. Systems, Estimation, and Control*, 1: 335-369.

27. Allen, L. J. S., M. J. Strauss, H. G. Thorvilson, and W. N. Lipe. 1991. A preliminary mathematical model for the apple twig borer and grapes on the Texas High Plains. *Ecological Modelling*, 58: 369-383.

28. Allen, L. J. S., E. J. Allen, C. R. G. Kunst, and R. E. Sosebee. 1991. A diffusion model for dispersal of cholla on rangeland. *Journal of Ecology*, 79: 1123-1135.

29. Moulton, M. P., L. J. S. Allen, D. K. Ferris. 1992. Competition, coexistence and habitat selection in two introduced Hawaiian Mannikins. *Biotropica*, 24: 77-85.

30. Allen, E. J., J. M. Harris, and L. J. S. Allen. 1992. Persistence-time models for use in viability analyses of vanishing species. *Journal of Theoretical Biology*, 155: 33-53.

31. Allen, L. J. S., M. K. Hannigan, and M. J. Strauss. 1993. Mathematical analysis of a plant-herbivore system. *Bulletin of Mathematical Biology*, 55: 847-864.

32. Lockwood, P. and L. J. S. Allen. 1993. Models for the spread of disease in predator-prey systems. *Proceedings of the Texas Academy of Sciences*, 96th Annual Meeting, Univ. North Texas, Denton, pp. 276–281.

33. Allen, L. J., T. Lewis, C. F. Martin, G. Mundel, A. B. Way, C. K. Lo, M. A. Jones, and M. Stamp. 1993. Analysis of a measles epidemic. *Statistics in Medicine*, 12: 229–239.

34. Allen, L. J. S. 1994. Some discrete-time SI, SIR, and SIS epidemic models. *Mathematical Biosciences*, 124: 83–105.

35. Martin,C. F., L. J. S. Allen, and M. Stamp. 1995. Urn model simulations of a sexually transmitted disease epidemic. *Applied Mathematics and Computation*. 71: 179–199.

36. Allen, L. J. S. and P. J. Cormier. 1996. Environmentally-driven epizootics. *Mathematical Biosciences*, 131: 51-80.

37. Martin, C. F., L. J. S. Allen, and M. Stamp. 1996. An analysis of the transmission of chlamydia in a closed population. *Journal of Difference Equations and Applications*, 2: 1–29.

38. Allen, E. J., L. J. S. Allen, and X. Gilliam. 1996. Dispersal and competition models for plants. *Journal of Mathematical Biology*. 34: 455-481.

39. Allen, L. J. S., E. J. Allen, and S. Ponweera. 1996. A mathematical model for weed dispersal and control. *Bulletin of Mathematical Biology*. 58: 815-834.

40. Allen, L. J. S. and D. Thrasher. 1998. The effects of vaccination in an age-dependent model for varicella and herpes zoster. *IEEE Transactions on Automatic Control*. 43: 779–789.

41. Williams, M. J. and L. J. S. Allen. 1998. The RSA Algorithm: A Public-Key Cryptosystem. *Mathematical Spectrum*, 31: 9–13. (Williams awarded Mathematical Spectrum Prize for his contribution to Volume 31.)

42. Jang S. R. -J. and L. J. S. Allen. 1999. A simple food chain with a growth inhibiting nutrient. *Applied Mathematics and Computation*. 104: 277–298.

43. Allen, L. J. S. and A. Burgin. 2000. Comparison of deterministic and stochastic SIS and SIR models in discrete time. *Mathematical Biosciences*, 163: 1–33.

44. Allen, L. J. S., E. J. Allen, and D. Atkinson. 1999. Integrodifference equations applied to plant dispersal, competition, and control. *Fields Institute Communications* 21: 15–30.

45. Block, G. L. and L. J. S. Allen. 2000. Population extinction and quasi-stationary behavior in stochastic density-dependent structured models. *Bulletin of Mathematical Biology*. 62: 199–228.

46. Allen, L. and C. Martin. 2000. Black Death, AIDS, and Mathematics: What's the Connection? *Lubbock Magazine*, 6(2): 56–61.

47. Kesinger, J. C., L. J. S. Allen, R. E. Strauss. 2001. Discrete-time models for gene frequencies and population densities in plant pathosystems. *Nonlinear Analysis*, 47: 1489–1500.

48. Allen, L. J. S. 2001. SI and SIR Epidemic Models. *Journal of Difference Equations and Applications*, Open Problems and Conjectures. 7: 759–761.

49. Kesinger, J. C. and L. J. S. Allen. 2002. Genetic models for plant pathosystems. *Mathematical Biosciences*, 177&178: 247–269.

50. Allen, L. J. S., D. A. Flores, R. K. Ratnayake, and J. R. Herbold. 2002. Discrete-time deterministic and stochastic models for the spread of rabies. *Applied Mathematics and Computation*, 132: 271–292.

51. Ackleh, A. S. and L. J. S. Allen. 2003. Competitive exclusion and coexistence for pathogens in an epidemic model with variable population size. *Journal of Mathematical Biology*, 47: 153-168.

52. Allen, L. J. S. 2003. Risk of population extinction due to demographic stochasticity in population models. *Comments on Theoretical Biology*, 8: 433–454.

53. Allen, L. J. S., M. Langlais, and C. J. Phillips. 2003. The dynamics of two viral infections in a single host population with applications to hantavirus. *Mathematical Biosciences*, 186: 191–217.

54. Allen, L. J. S. and E. J. Allen. 2003. A comparison of three different stochastic population models with regard to persistence time. *Theoretical Population Biology*, 64: 439–449.

55. Allen, L. J. S., N. Kirupaharan, and S. M. Wilson. 2004. SIS epidemic models with multiple pathogen strains. *Journal of Difference Equations and Applications*, 10: 53–75. [Named best paper in 2004.]

56. Roeger, L.-I. W. and L. J. S. Allen. 2004. Discrete May-Leonard competition models, I. *Journal of Difference Equations and Applications*, 10: 77-98.

57. Kirupaharan, N. and L. J. S. Allen. 2004. Coexistence of multiple pathogen strains in stochastic epidemic models with density-dependent mortality. *Bulletin of Mathematical Biology*, 66: 841-864.

58. Emmert, K. E. and L. J. S. Allen. 2004. Population persistence and extinction in a discrete-time, stage-structured epidemic model. *Journal of Difference Equations and Applications*, 10: 1177-1199.

59. Allen, L. J. S. and N. Kirupaharan. 2005. Asymptotic dynamics of deterministic and stochastic epidemic models with multiple pathogens. *International Journal of Numerical Analysis and Modeling*, 2(3): 329-344.

60. Ackleh, A. S. and L. J. S. Allen. 2005. Competitive exclusion in SIS and SIR epidemic models with total cross immunity and density-dependent host mortality. *Discrete and Continuous Dynamical Systems–Series B*, 5(2): 175-188.

61. Allen, L. J. S., J. F. Fagan, G. Hognas, and H. Fagerholm. 2005. Population extinction in discrete-time stochastic population models with an Allee effect. *Journal of Difference Equations and Applications*, 11(4-5): 273–293.

62. Allen, E. J., L. J. S. Allen, and H. Schurz. 2005. A comparison of persistence-time estimation for discrete and continuous stochastic population models that include demographic and environmental variability. *Mathematical Biosciences*, 196: 14–38.

63. McCormack, R. K. and L. J. S. Allen. 2005. Disease emergence in deterministic and stochastic models for host and pathogen. *Applied Mathematics and Computation.* 168(2): 1281-1305.

64. Emmert, K. E. and L. J. S. Allen. 2006. Population extinction in deterministic and stochastic discrete-time epidemic models with periodic coefficients with applications to amphibians. *Natural Resource Modeling*, 19(2): 117–164.

65. Xu, D., Z. Feng, L. J. S. Allen, and R. K. Swihart. 2006. A spatially structured metapopulation model with patch dynamics. *Journal of Theoretical Biology*, 239(4): 469–481.

66. Drew, A. J., E. J. Allen, and L. J. S. Allen. 2006. An investigation of climatic and geographic factors on the presence of chytrid fungus on amphibian populations in Australia. *Diseases of Aquatic Organisms*, 68: 245–250.

67. Allen, L. J. S., R. K. McCormack, and C. B. Jonsson. 2006. Mathematical models for hantavirus infection in rodents. *Bulletin of Mathematical Biology*, 68(3): 511–524.

68. Allen, L. J. S. and P. van den Driessche. 2006. Stochastic epidemic models with a backward bifurcation. *Mathematical Biosciences and Engineering*, 3(3): 445–458.

69. McCormack, R. K. and L. J. S. Allen. 2007. Disease emergence in multi-host epidemic models. *Mathematical Medicine and Biology*, 24: 17–34.

70. Ackleh, A. S., L. J. S. Allen, and J. Carter. 2007. Establishing a beachhead: A stochastic population model with an Allee effect applied to species invasion. *Theoretical Population Biology*, 71: 290–300.

71. McCormack R. K. and L. J. S. Allen. 2007. Multi-patch deterministic and stochastic models for wildlife diseases. *Journal of Biological Dynamics*, 1(1): 63–85.

72. Allen, L. J. S., B. M. Bolker, Y. Lou, and A. L. Nevai. 2007. Asymptotic profiles of the steady states for an SIS epidemic patch model. *SIAM Journal of Applied Mathematics*, 67(5): 1283–1309.

73. Xu, Y., L. J. S. Allen, and A. S. Perelson. 2007. Stochastic model of an influenza epidemic with drug resistance. *Journal of Theoretical Biology*, 248: 179–193.

74. Allen, L. J. S., B. M. Bolker, Y. Lou, and A. L. Nevai. 2008. Asymptotic profiles of the steady states for an SIS epidemic reaction-diffusion model. *Discrete and Continuous Dynamical Systems-Series A*, 21(1): 1–20.

75. Allen, E. J., L. J. S. Allen, A. Arciniega, and P. Greenwood. 2008. Construction of equivalent stochastic differential equation models. *Stochastic Analysis and Applications*, 26: 274–297.

76. Allen, L. J. S. and P. van den Driessche. 2008. The basic reproduction number in some discrete-time epidemic models. *Journal of Difference Equations and Applications*, 14: 1127–1147.

77. Banerjee, C., L. J. S. Allen, and J. Salazar-Bravo. 2008. Models for an arenavirus infection in a rodent population: consequences of horizontal, vertical and sexual transmission. *Mathematical Biosciences and Engineering*, 5: 617–645.

78. Wesley, C. L., L. J. S. Allen, C. B. Jonsson, Y.-K. Chu, and R. D. Owen. 2009. A discrete-time rodent-hantavirus model structured by infection and developmental stages. *Advanced Studies in Pure Mathematics*, 53: 1–12.

79. Allen, L. J. S., Y. Lou, and A. L. Nevai. 2009. Spatial patterns in a discrete-time SIS patch model. *Journal of Mathematical Biology*, 58: 339–375.

80. Ekanayake, A. J., J-S. Tsai, L. J. S. Allen, L. M. Smith, J. Surles, and E. J. Allen. 2009. Estimating watershed area for playas in the Southern High Plains, USA. *Wetlands*, 29: 387–395.

81. Wesley, C. L. and L. J. S. Allen. 2009. The basic reproduction number in epidemic models with periodic demographics. *Journal of Biological Dynamics*, 3: 116-129.

82. Allen, L. J. S. , C. L. Wesley, R. D. Owen, D. G. Goodin, D. Koch, C. B. Jonsson, Y.-K. Chu, S. Hutchinson, and R. Paige. 2009. A habitat-based model for the spread of hantavirus between reservoir and spillover species. *Journal of Theoretical Biology*, 260: 510-522.

83. Wesley, C. L., L. J. S. Allen and M. Langlais. 2010. Models for the spread and persistence of hantavirus infection in rodents with direct and indirect transmission. *Mathematical Biosciences and Engineering*, 7: 195-211.

84. Erickson, R. A., S. M. Presley, L. J. S. Allen, K. R. Long, and S. B. Cox. 2010. A stage-structured, *Aedes albopictus* population model. *Ecological Modelling*, 221: 1273-1282.

85. Ekanayake, A. J. and L. J. S. Allen. 2010. Comparison of Markov chain and stochastic differential equation population models under higher-order moment closure approximations. *Stochastic Analysis and Applications,* 28: 907–927.

86. Erickson, R. A., S. M. Presley, L. J. S. Allen, K. R. Long, and S. B. Cox. 2010. A dengue model with a dynamic *Aedes albopictus* vector population. *Ecological Modelling*, 221: 2899–2908.

87. Mallawa Arachchi, D. K., L. J. S. Allen, and C. Carey. 2011. Stability and permanence in gender- and stage-structured population models for the boreal toad. *Journal of Biological Dynamics*, 5: 1–26.

88. Yuan, Y. and L. J. S. Allen. 2011. Stochastic models for virus and immune system dynamics. *Mathematical Biosciences*, 234: 84-94.

89. Allen, L. J. S., V. L. Brown, C. B. Jonsson, S. L. Klein, S. M. Laverty, K. Magwedere, J. C. Owen and P. van den Driessche. 2012. Mathematical modeling of viral zoonoses in wildlife. *Natural Resource Modelling*, 25 (102): 5–51.

90. Allen, L. J. S. and G. E. Lahodny Jr. 2012. Extinction thresholds in deterministic and stochastic epidemic models. *Journal of Biological Dynamics*, 6(2): 590–611.

91. Erickson, R.A., K. Hayhoe, S. M. Presley, L. J. S. Allen, K. R. Long, and S. B. Cox. 2012. Potential impacts of climate change on the ecology of dengue and its mosquito vector the Asian tiger mosquito (*Aedes albopictus*). *Environ. Res. Lett.* 7, 034003 (6pp).

92. Allen, L. J. S. and V. A. Bokil. 2012. Stochastic models for competing species with a shared pathogen. *Mathematical Biosciences and Engineering*, 9: 461–485.

93. Vidurupola, S. and L. J. S. Allen. 2012. Basic stochastic models for viral infection within a host. *Mathematical Biosciences and Engineering.* 9: 915-935.

94. Allen, L. J. S. and P. van den Driessche. 2013. Relations between deterministic and stochastic thresholds for disease extinction in continuous- and discrete-time infectious disease models. *Mathematical Biosciences*, 243: 99–108.

95. Lahodny, Jr., G. E. and L. J. S. Allen. 2013. Probability of a disease outbreak in stochastic multi-patch epidemic models. *Bulletin of Mathematical Biology*, 75:1157–1180.

96. X. Wang, R. Gautam, P. J. Pinedo, L. J. S. Allen, and R. Ivanek. 2014. A stochastic model for transmission, extinction and outbreak of *Escherichia coli O157:H7* in cattle as affected by ambient temperature and pathogen cleaning practices. *Journal of Mathematical Biology*, 69(2): 501–532.

97. Mandal, P. S., L. J. S. Allen and M. Banerjee. 2014. Stochastic modeling of phytoplankton allelopathy. *Applied Mathematical Modelling*, 38: 1583–1596.

98. Allen, L. J. S. and V. L. Kocic. 2014. Resonance in Beverton-Holt population models with periodic and random coefficients. *Journal of Difference Equations and Applications*, 20: 925–946.

99. Vidurupola, S. and L. J. S. Allen. 2014. The impact of variability in stochastic models of bacteria-phage dynamics applicable to phage therapy. *Stochastic Analysis and Applications*, 32(3): 427–449.

100. Allen, L. J. S. and E. J. Schwartz. 2015. Free-virus and cell-to-cell transmission in models of equine infectious anemia virus infection. *Mathematical Biosciences*, 270: 237–248.

101. Hamelin, F. M., L. J. S. Allen, H. R. Prendeville, M. R. Hajimorad, and M. J. Jeger. 2016. The evolution of plant virus transmission pathways. *Journal of Theoretical Biology*, 396: 75–89.

102. Hebert, M. P. and L. J. S. Allen. 2016. Disease outbreaks in plant-vector-virus models with vector aggregation and dispersal. *Discrete and Continuous Dynamical Systems-B* 21(7): 2169-2191.

103. Allen, L. J. S., S. R. Jang and L.-I. Roeger. 2017. Predicting population extinction or disease outbreaks with stochastic models. *Letters in Biomathematics*, 4:1–22.

104. Allen, L. J. S. 2017. A primer on stochastic epidemic models: formulation, numerical simulation, and analysis. *Infectious Disease Modelling.* 2: 128-142.

105. Hamelin, F. M., F. M. Hilker, T. A. Sun, M. J. Jeger, M. R. Hajimorad, L. J. S. Allen, and H. R. Prendeville. 2017. The evolution of parasitic and mutualistic plant-virus symbioses through transmission-virulence trade-offs. *Virus Research*, 241: 77-87. doi: 10.1016/j.virusres.2017.04.011.

106. Hilker, FM, LJS Allen, VA. Bokil , CJ Briggs, Z Feng, KA Garrett, LJ Gross, FM Hamelin, MJ Jeger, CA Manore, AG Power, MG Redinbaugh, MA Rúa and NJ Cunniffe. 2017. Modelling virus coinfection to inform management of maize lethal necrosis in Kenya. *Phytopathology*, 107(10):1095–1108. doi: 10.1094/PHYTO-03-17-0080-FI.

Manuscripts under Review

1. Bai, F., K. E. S. Huff, and L. J. S. Allen. The effect of delay in viral reproduction in within-host models during early infection. Submitted to *Journal of Biological Dynamics*.

2. Zhang, W., S. Jang, C. Jonsson, and L. J. S. Allen. Models of cytokine dynamics in the inflammatory response in viral zoonotic infectious diseases. Submitted to *Mathematical Medicine and Biology*.

3. Edholm, C. J., B. O. Emerenini, A. L. Murillo, O. Saucedo, N. Shakiba, X. Wang, L. J. S. Allen, and A. Peace. 2017. Searching for superspreaders: Identifying epidemic patterns associated with superspreading events in stochastic models. Springer Book Chapter, *Understanding Complex Biological Systems with Mathematics*.

4. Tritch, W. and L. J. S. Allen. Duration of a minor epidemic. Submitted to *Infectious Disease Modelling*.

Manuscripts in Progress

1. V. A. Bokil, L. J. S. Allen, M. J. Jeger, and S. Lenhart. Optimal control of a vectored plant disease model for a crop with continuous replanting.

2. A. Nandi and L. J. S. Allen. Stochastic multigroup models with transmission dependent on host infectivity or susceptibility.

Book Reviews:

1. *Modelling Biological Populations in Space and Time* by Eric Renshaw, Cambridge Studies in Mathematical Biology, Cambridge University Press, 1991. *Mathematical Biosciences*. (1995) 127: 123-126.

2. *Mathematics in Population Biology* by Horst Thieme, Princeton Univ. Press, 2003, *SIAM Review*. (2004) 46 (2): 356-358.

3. *Chaos in Ecology Experimental Nonlinear Dynamics* by Jim Cushing, Robert Constantino, Brian Dennis, Robert Desharnais, and Shandelle Henson, Academic Press Theoretical Ecology Series, 2003. *Journal of Difference Equations and Applications*. (2007) 13 (1): 93-94.

4. *A Course in Mathematical Biology: Quantitative Modeling with Mathematical and Computational Methods* by Gerda de Vries, Thomas Hillen, Mark Lewis, Johannes Müller, Birgitt Schönfisch. SIAM, Philadelphia, 2006. *SIAM Review*. (2007) 49 (2): 329-331.

5. *Workshop on Branching Processes and Their Applications* edited by Gonzalez Veláasco, Puerto, Martínez, Molina, Mota, and Ramos. Lecture Notes in Statistics, Springer, Vol. 197, 2010. *Journal of the American Statistical Association Reviews*. (2012) 107(497): 438-439.

INVITED SEMINARS, COLLOQUIA, AND LECTURE SERIES:

1. "Mathematical models applied to plant and insect pests," North Carolina State University, April 1994.

2. "Discrete-time and age-structured epidemic models with an application to chickenpox." Mathematics Colloquium. Trinity University, March 1996.

3. "Difference and integrodifference equations: models for infectious diseases and range weeds." New Mexico State University. November 1997.

4. "Deterministic and stochastic discrete-time epidemic models." Arizona State University. February 1998.

5. "Deterministic and stochastic discrete-time epidemic models." Baylor University. March 1998.

6. "A competitive exclusion principle for pathogens." Math Ecology Seminar. University of Tennessee. October 2001.

7. "Mathematical models of epidemics." Mathematics Colloquium. Texas Christian University. February 2002.

8. "The risk of population extinction in models with demographic stochasticity." Mathematics Colloquium. University of Louisiana at Lafayette. October 2003.

9. "Models for two emerging wildlife diseases: Hantavirus in Rodents and Chytridiomycosis in Amphibians". Mathematics Seminar, Purdue University. November 2004.

10. "Multi-host and multi-patch models for an emerging disease of wildlife: hantavirus". Mathematical Biosciences Institute Seminar, Ohio State University. March 2006.

11. "Mathematical models for two emerging diseases of wildlife: Hantavirus and Chytridiomycosis." Mathematics Colloquium. Florida Gulf Coast University. March 2007.

12. "Emerging zoonotic diseases in wildlife: metapopulation models with multiple pathogens and multiple hosts." Mathematics Colloquium. University of Nevada, Las Vegas. November 2007.

13. "Models for the spread of an infectious disease in a population: influenza, hantavirus, and chytridiomycosis", UGROW Presentation at Midwestern State University, Wichita Falls, May 29, 2008

14. "An Intensive Course in Stochastic Processes and Stochastic Differential Equations in Mathematical Biology", Invited series of lectures at the National Center for Theoretical Sciences of the National Tsing Hua University in **Taiwan**, August 2008.

15. "Modeling a Zoonotic Disease: Multiple Hosts, Spatial Heterogeneity and Seasonal Variations", Mathematics Colloquium. University of Texas at Arlington, November 2009.

16. "Stochastic Models in Epidemiology and Immunology", Mathematics Colloquium. Oakland University, March 25, 2010

17. "Modeling a Zoonotic Disease: Hantavirus", Math/Biology Colloquium.Trinity University, April 26, 2010.

18. "Pathogen Extinction in Stochastic Models of Epidemics and Viral Dynamics", Biomathematics Seminar, University of Florida, February 11, 2011.

19. "Mathematical Modeling of Infectious Diseases I. Introduction to Deterministic Epidemic Models, II. Introduction to Stochastic Epidemic Models, III. Applications of Deterministic and Stochastic Epidemic Models", Third Porto Meeting on Mathematics for Industry. Main Speaker. Centro de Matematica da Universidade do Porto, Porto, **Portugal**, April 28-30, 2011.

20. "Mathematical Models of Infectious Diseases: the Importance of Heterogeneity", University of Nevada, Las Vegas, School of Life Sciences Seminar, November 18, 2011.

21. "Extinction Thresholds in Deterministic and Stochastic Models for Epidemics and Viral Dynamics", Mathematical Biosciences Institute Colloquium, Ohio State U., February 13, 2012.

22. "Thresholds in Deterministic and Stochastic Infectious Disease Models", Southern Illinois University, Mathematics Colloquium, September 20, 2012.

23. "Mathematical Models of a Zoonotic Infectious Disease: Hantavirus", Middle Tennessee State University Colloquium, Murfreesboro, TN, March 27, 2013.

24. Invited Series of Lectures for the 2013 Atlantic Association of Research in the Mathematical Sciences (AARMS) Summer School, Stochastic Modeling with Applications in Biology, St. John's Memorial University of **Newfoundland**, CA, Two Week/Daily Lectures during July 15-August 9, 2013.

25. "Predicting Population Extinction and Disease Outbreaks with Branching Processes", Florida State University Colloquium, Tallahassee, Florida, April 3, 2015.

26. Workshop on Stochastic Epidemic Modelling. University of KwaZulu-Natal, Pietermaritzburg, **South Africa.** Lecturer and Facilitator. July 6-10, 2015.

27. Two-Day Workshop on "Modeling and Simulation in Mathematical Biology", University of Kelaniya, **Sri Lanka**, July 8-9, 1017.

28. "Modeling of Infectious Diseases in Plants and Animals", University of Peradeniya, **Sri Lanka**, Mathematics Colloquium, July 10, 2017.

29. Honors Course for Undergraduate Students: An Introduction to Mathematical Modeling: "Introduction to Discrete-Time Deterministic Models in Ecology and Epidemiology", "Introduction to Ordinary Differential Equations in Ecology and Epidemiology", "Biological Problems where Mathematical Modeling Plays an Important Role", "Stochastic'Formulations: Exponential Growth and Cancer Treatment", University of Kelaniya, **Sri Lanka**, June-July, 2017.

30. "Mathematical Modeling of Viral Zoonotic Infectious Diseases", University of Kelaniya, **Sri Lanka**, Mathematics Colloquium, July 14, 2017.

31. "Stochastic Models on the Emergence of Disease in Viral Zoonoses", Invited School of Mathematical and Statistical Sciences Colloquium and Biomathematics Seminar, Arizona State University, October 19, 2017.

PROFESSIONAL, KEYNOTE and PLENARY PRESENTATIONS:

1. "Analysis of nonlinear matrix equations for fish population dynamics," SEAS-SIAM Meeting, Columbia, South Carolina, April 1978.

2. "Persistence and extinction problems for reaction-diffusion systems," SEAS-SIAM Meeting, Atlanta, Georgia, April 1981.

3. "Models with crowding-induced diffusion," Southeast Mathematical Ecology Conference, Knoxville, Tennessee, April 1984.

4. "Critical patch number for island populations," National SIAM Meeting, Tempe, Arizona, October 1985.

5. "Population Models," Symposium on Population Modeling and Ecology of Playa Lakes, Texas Tech University, May 1986.

6. "A mathematical model for an endangered watersnake," Southeast Mathematical Ecology Conference, Charleston, South Carolina, April 1987.

7. "Critical patch size for discrete reaction-diffusion models," National SIAM Meeting, Minneapolis, Minnesota, July 1988.

8. "Persistence in an age-structured population for a patch-type environment," Southeast Mathematical Ecology Conference, Wakulla Springs, Florida, March 1989.

9. "Some relationships between continuous and discrete logistic population models," Texas Section Meeting of the MAA, Denton, Texas, March 1990.

10. "Mathematical analyses and simulations of a measles epidemic," Symposium on Statistical Methods for Evaluation of Intervention and Prevention Strategies, CDC, Atlanta, Georgia, December 1990.

11. "Mathematical analyses and simulations of a measles epidemic," Biometric Society ENAR Spring Meeting, Houston, Texas, March 1991. Invited Lecture.

12. "A diffusion model for dispersal of cholla on rangeland," Texas Section Meeting of the MAA, Houston, Texas, April 1992.

13. "Mathematical analysis of a plant-herbivore system," World Congress of Nonlinear Analysts. Tampa, Florida, August 1992. Invited Presentation.

14. "Models of epidemics," Texas Section Meeting of the MAA, Abilene, Texas, April 1993. **PLENARY Address.**

15. "Environmentally-driven epizootics," Annual Southeastern Mathematical and Statistical Ecology Conference. Raleigh, North Carolina, April 1994.

16. "Deterministic models of infectious diseases." Symposium on Mathematics and Medicine. Texas Tech University and Health Science Center. Lubbock, Texas. April 1994.

17. "Some Discrete-Time SI, SIR, and SIS Epidemic Models." The First International Conference on Difference Equations. San Antonio, Texas, May 1994.

18. "Discrete-Time Population Models with Age and Stage Structure I, II", "Discrete-Time Epidemic Models." Fourth Autumn Course on Mathematical Ecology. International Center for Theoretical Physics, Trieste, Italy, October-November 1994. Invited Lecture.

19. "Discrete-time and age-structured epidemic models." Southwest Regional Institute on Mathematical Sciences (SWRIMS) Conference on Modeling in Population Dynamics. Utah State University, August 1995. Invited Lecture.

20. "Dynamics and control of infectious diseases." Mathematics for Undergraduate Life Sciences Students. Iowa State University, Ames, Iowa. May 1996.

21. "Models for weed dispersal, competition, and control." Mathematical Theory of Networks and Systems-96. Washington University, St. Louis, Missouri. June 1996.

22. "Environmentally-driven epizootics." 47th Annual Conference on Diseases in Nature Transmissible to Man. Texas Tech University Health Sciences Center, Lubbock, Texas. June 1997.

23. "Some discrete-time epidemic models with applications to chlamydia and chickenpox." MAA Short Course on Epidemiology Modeling, cosponsored by CDC, Atlanta, Georgia. July 31-August 1, 1997. Invited Lecture.

24. "Integrodifference equation models for plant competition and dispersal." International Conference on Differential Equations with Applications to Biology. Halifax, Nova Scotia. July 1997.

25. "Deterministic and stochastic SIS and SIR models in discrete time." AMS, Fall Western Sectional Meeting, Albuquerque, New Mexico. November 1997.

26. "Mathematical models for infectious diseases in humans and animals." Mathematics of the Life Sciences. Texas Tech University. January 1998.

27. "Geographic dispersal and control of weeds." Workshop on Heterogeneous Problems in Ecology and Epidemiology. Fifth International Conference on Mathematical Population Dynamics. Zakopane, Poland. June 1998. Invited Lecture.

28. "Stochastic and deterministic discrete age-structured models." Joint Mathematics Meetings. AMS Special Section. San Antonio, Texas. January 1999.

29. "An age-structured model for canine rabies," "Occurrence, duration, and size of an epidemic in deterministic and stochastic SI and SIS models, "Some Stochastic SIS Models." Workshop on Mathematical Epidemiology. Pacific Institute for the Mathematical Sciences. University of British Columbia, Vancouver, Canada. July 1999. Invited Principal Speaker. Stability and permanence in gender- and stage-structured population models for the boreal toad.

30. "The Impact of Long-Range Dispersal in Population and Epidemic Models," Fifth International Conference on Difference Equations, Univ. de la Frontera, Temuco, Chile. January 2000. Invited Presentation.

31. "The dynamics of two viral infections within a single host population" Southeastern Sectional Meeting of the AMS. AMS Special Section. Layfayette, Louisiana. April 2000. Invited Presentation.

32. "Deterministic and stochastic discrete-time epidemic models for gene frequencies and population densities with applications to plant pathosystems," Third World Congress of Nonlinear Analysts 2000. Catania, Italy. July 2000. Invited Presentation.

33. "Deterministic and stochastic discrete-time epidemic models." Sixth SIAM Conference on Application of Dynamical Systems. Snowbird, Utah. May 2001. Invited Presentation.

34. "Deterministic and Stochastic Epidemic Models." DIMACS Tutorial on Dynamic Models of Epidemiological Problems. Rutgers University, Piscataway, New Jersey, June 2002. Invited presentation.

35. "Competitive Exclusion in Discrete-Time Epidemic Models," Annual Meeting of the Society for Mathematical Biology, University of Tennessee, July, 2002.

36. "Competitive Exclusion in Discrete-Time Deterministic and Stochastic Spatial Epidemic Models with Multiple Pathogens." Minisymposium at the SIAM Conference on the Applications of Dynamical Systems, May 27-30, 2003. Invited presentation.

37. "Stochastic Differential Equation Models for Epidemics with Multiple Pathogens," Joint AMS Central and Western Section Meeting, Boulder, CO, October 2-4, 2003.

38. "A Comparison of Three Different Stochastic Population Models with Regard to Persistence Time", Thirty-third Annual Lloyd Roeling/University of Louisiana at Lafayette Mathematics Conference, October 24-26, 2003.

39. "The dynamics of two viral infections in a single host population with applications to hantavirus", National MAA/AMS Meeting, Pheonix, Arizona, January 2004, Invited presentation.

40. "An Introduction to Epidemic Modeling", MAA PREP Workshop: Mathematics Meets Biology: Epidemics, Data Fitting, and Chaos, University of Louisiana, Lafayette, May 26-29, 2004, Invited Lecturer.

41. "An Introduction to Stochastic Epidemic Models-Parts I, II, III", PIMS-MITACS-MSRI Special Program on Infectious Diseases Summer School, Banff International Research Station, Alberta, Canada. June 19-27, 2004. Invited Lecturer.

42. "Extinction in Discrete-Time Stochastic Population and Epidemic Models. Effect of Dispersal, Structure, and Allee Threshold". Ninth International Conference on Difference Equations and Applications, Los Angeles, CA. August 2-6, 2004. **PLENARY Speaker.**

43. "Stochastic Epidemic Models for the Spread of Hantavirus in Rodents", SIAM Conference on Applications of Dynamical Systems. Snowbird, Utah. May 22-26, 2005, Invited presentation.

44. "Deterministic and Stochastic Models for an Emerging Wildlife Disease: Hantavirus" AMS-IMS-SIAM Summer Research Conference, Modeling the Dynamics of Human Diseases: Emerging Paradigms and Challenges. Snowbird, Utah. July 17-July 21, 2005, Invited presentation.

45. "Emerging Wildlife Disease Modeling". Workshop on Mathematical Epidemiology. Banff International Research Station, Alberta, Canada. August 20-25, 2005. Invited Lecturer.

46. "Stochastic epidemic models with a backward bifurcation". AMS-MAA National Meeting, San Antonio, Texas. AMS-SIAM Special Session on Theory and Application of Stochastic Differential Equations, January 12-15, 2006.

47. "Deterministic and stochastic models of an emerging wildlife disease: hantavirus". Workshop on Mathematics in Biology and Medicine. Arizona State University. February 3, 2006.

48. "An Introduction to Stochastic Epidemic Models, I, II". 2006 Summer School on Mathematical Modeling of Infectious Diseases. York University, Toronto, Canada. June 10-20, 2006.

49. "Emerging Diseases of Wildlife." Public Lecture. Fields Institute. Toronto, Canada. June 14, 2006.

50. "Epidemic Models with Multiple Pathogen Strains." SIAM Annual Meeting, Boston, MA. June 10-14, 2006.

51. "The Basic Reproduction Number in Discrete-Time Epidemic Models for Wildlife Diseases". International Conference on Difference Equations and Applications. Kyoto University, Kyoto, Japan. July 24-28, 2006. Invited presentation.

52. "Existence of a disease-free equilibrium in an SIS epidemic patch model when the rate of susceptible dispersal approaches zero." April 21-22, 2007. AMS Sectional Meeting. Tuscon, Arizona.

53. "Gender and age structured models for amphibian populations". Conference on Mathematical Modeling and Analysis of Populations in Biological Systems- In Honor of Jim Cushing. University of Arizona, October 5-7, 2007.

54. Workshop: "Integrating Biological Applications in the Mathematics Curriculum", Texas Section Meeting of the MAA, Tarleton State University, April 3, 2008, Invited Lecturer.

55. "Introduction to Stochastic Epidemic Models, Parts I and II", 2008 Summer School on Mathematical Modeling of Infectious Diseases, University of Alberta, Edmonton, Canada, May 1-11, 2008. Invited Lecturer.

56. "Stochastic Metapopulation Models of Patch Occupancy and Stochastic Metapopulation Models for the Spread of Hantavirus In Wild Rodents", WCNA-2008, Orlando, Florida, July 2-9, 2008.

57. "Comparing the dynamics of stochastic population models". 2008 AMS Fall Southeastern Meeting, Huntsville, Alabama, October 24-26, 2008.

58. "Models for hantavirus infection in rodents with indirect transmission to humans and with spillover infection". Differential Equations and Applications in Ecology and Epidemiology - in Honor of 60th Birthday of Horst R. Thieme. Purdue University, December 8-10, 2008.

59. "Stochastic Metapopulation Models", Workshop: Stochastic and deterministic spatial modeling in population dynamics. American Institute of Mathematics, Palo Alto, California, May 4-8, 2009. Invited participant.

60. "Stochastic models of invasions and epidemics", 2009 Summer School on The Mathematics of Invasions in Ecology and Epidemiology, Banff Centre, Alberta, Canada, May 10-17, 2009. Invited Lecturer.

61. "Zoonotic Diseases Carried by Rodents: Seasonal Fluctuations", 24th Annual Shanks Lecture and Conference Vanderbilt University, May 18-21, 2009. **PLENARY Speaker.**

62. "Stochastic Processes with Applications to Epidemiology", 2009 China-Canada Colloquium on Modeling Infectious Diseases, Xi'an Jiaotong University, Shaanxi, People's Republic of China, September 20-25, 2009. **PLENARY Speaker.**

63. "Stochastic Models for Spread of Viral Infection Within and Between Hosts", SIAM Conference on Life Sciences, Pittsburgh, Pennsylvania, July 12-15, 2010.

64. "Stochastic Models for Viral Reproduction", Symposium on Biomathematics and Ecology: Education and Research, September 4-5, 2010, Illinois State University. **KEYNOTE Presentation.**

65. "Stochastic Viral Kinetics", AMS special session at the Joint Mathematics Meetings in New Orleans, January 6, 2011.

66. "Applications of discrete-time Markov chains and branching processes and Applications of continuous-time Markov chains and branching processes NIMBioS Tutorial Stochastic Models with Biological Applications University of Tennessee, Knoxville, Tennessee, March 16-18, 2011.

67. "Spread of Disease From Reservoir to Spillover Populations", Emerging Challenges at the Interface of Mathematics, Environmental Science and Spatial Ecology, Banff International Research Station, Banff, Canada, July 4-8, 2011, Invited Speaker.

68. "An Introduction to Stochastic Epidemic Models", 2011 MBI-NIMBioS-CAMBAM Summer Graduate Program, Mathematical Biosciences Institute. Ohio State University Columbus, Ohio August 1, 2011.

69. "Persistence and Spread of Zoonotic Disease in Stochastic Models with Gender and Spatial Structure", Mathematical Biology Workshop and IGTC Summit, University of Victoria, Canada, July 14-16, 2011.

70. "Thresholds for Population or Pathogen Survival in Stochastic Models", ICMA III, Trinity University, October 7-9, 2011. **PLENARY Speaker.**

71. "Pathogen Extinction in Stochastic Models of Epidemics and Viral Dynamics", Workshop 2: Stochastic Processes in Cell and Population Biology, Mathematical Biosciences Institute, Ohio State University, October 24-28, 2011.

72. "Mathematical modeling of viral zoonoses in wildlife", Joint Mathematics Meetings, Boston, MA, January 4, 2012.

73. "Stochastic thresholds for discrete-time epidemic models", Progress on Difference Equations 2012, Virginia Commonwealth University, Richmond, VA, May 13-18, 2012. **PLENARY Speaker.**

74. "An Introduction to Stochastic Epidemic Models", 2012 MBI-NIMBioS-CAMBAM Summer Graduate Program, Mathematical Biosciences Institute. Ohio State University Columbus, Ohio June 19-20, 2012.

75. "Workshop: An Introduction to Stochastic Models in Mathematical Biology", with S. Jang and L. Roeger. TX Section Meeting of MAA, Texas Tech U, April 11, 2013.

76. "Stochastic Epidemic and Endemic Models of Infectious Diseases", Summer School Course Instructor on Mathematics of Infectious Diseases, Mprime Centre for Disease Modelling at York University, May 19-27, 2013.

77. "Probability of a disease outbreak in stochastic multi-patch models with applications to zoonotic infectious diseases", Society of Mathematical Biology Minisymposium, Disease Dynamics in Animal Populations, Arizona State University, June 10-13, 2013.

78. "Relations Between Deterministic and Stochastic Thresholds for Disease Extinction", 2013 AARMS Mathematical Biology Workshop, Memorial University, St. John's, Newfoundland, CA, July 27-29, 2013. **PLENARY Speaker.**

79. "Thresholds for extinction in stochastic models of infectious diseases: importance of time and location" Workshop: From Within Host Dynamics to the Epidemiology of Infectious Disease, MBI, Ohio State University, April 7-11, 2014.

80. "Probability of disease outbreaks in multi-species, multi-patch models with applications to zoonotic diseases", AMS TX Section Meeting, Texas Tech University, April 11-13, 2014.

81. "Mathematical Modeling of Viral Zoonotic Infectious Diseases", Hudson River Undergraduate Mathematics Conference and Spuyten Duyvil Undergraduate Mathematics Conference, HRUJMC XXI and SDUMC IX, April 26, 2014, Marist College, Poughkeepsie, NY, **KEYNOTE Speaker**.

82. "Stochastic thresholds for disease extinction in models for disease spread within and between hosts: the importance of targeted strategies", Midwest Mathematical Biology Conference, University of Wisconsin, La Crosse, May 17-18, 2014, **PLENARY Speaker.**

83. "Deterministic and stochastic thresholds for disease extinction in infectious disease models," 2014 SIAM Life Sciences Conference, Charlotte, NC, August 4-7, 2014. **PLENARY Speaker.**

84. "Probability of extinction in stochastic models of populations and infectious diseases: importance of time and location", 2014 SIAM Life Sciences Conference, Charlotte, NC, August 4-7, 2014. Special Session.

85. "Disease outbreaks in plant-vector-virus models with vector aggregation and dispersal". Society of Mathematical Biology Annual Meeting. Atlanta Georgia, June 30 - July 3, 2015. Invited special session.

86. "Predicting Population Extinction, Disease Outbreaks, and Species Invasions Using Branching Processes", **AWM-SIAM Sonia Kovalevsky Lecture**, ICIAM 2015, Beijing, China, August 13, 2015.

87. "Estimation of the Probability of Invasion and the Time to Invasion Failure in Markov Chain Models of Populations and Epidemics", University of Western Ontario, ICMA V, October 2-4, 2015.

88. "Stochastic Epidemic Models: Model Formulation and Numerical Simulation", "Application of Stochastic Epidemic Models: Disease Outbreaks in Multi-Host Models", US-Canada Institutes Summer School on Infectious Disease Spread, Invited Lectures, MBI, Ohio State University, June 12-22. 2016.

89. "Duration of a Minor Epidemic Near the Critical Threshold of $\mathcal{R}_0 = 1$", Joint Mathematics Meeting, Atlanta, Georgia. Special Session: Advances in Mathematics of Ecology, Epidemiology and Immunology of Infectious Diseases. January 6-7, 2017.

90. "Environment, Host and Pathogen Diversity on Probability of Disease Extinction", Biology and Medicine Through Mathematics Conference, Virginia Commonwealth University, May 18-20, 2017. **PLENARY Speaker**.

91. "Probability of Outbreak and Time to Outbreak in Viral Zoonotic Infectious Diseases", University of Victoria, September 21, 2017. **PIMS-UVic Distinguished Lecture**.

92. "The Duration of a Minor Epidemic in Stochastic Models of Infectious Diseases"', Sixth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems", October 20-22, 2017, University of Arizona.

CONFERENCE, SPECIAL SESSION and WORKSHOP ORGANIZATION:

1. Session: "Mathematical modeling in population dynamics," Mathematical Theory of Networks and Systems–96, St. Louis, Missouri, June 1996.

2. Session: "Mathematics for the Life Sciences" Lubbock, Texas, Jan. 1998.

3. Session in Honor of the 65th Birthday of T. G. Hallam, Annual Meeting of the Society for Mathematical Biology, University of Tennessee, July 2002 with A. Ackleh.

4. Session: "Structured Population and Epidemic Models: Periodicity, Chaos, and Extinction," for the Joint AMS Central and Western Section Meeting with S. R. Jang, Boulder, CO, Oct. 2-4, 2003

5. Session: "Extinction, Periodicity and Chaos in Population and Epidemic Models," for the AMS Spring Central Sectional Meeting with S. R. Jang and L. Roeger, Lubbock, TX, April 8-10, 2005.

6. Session: "Recent Advances in Mathematical Biology and Epidemiology", for the AMS-MAA Joint National Meeting, with S. R. Jang and L. Roeger, San Antonio, TX, January 12-15, 2006

7. Session: "Recent Advances in Mathematical Biology, Ecology, and Epidemiology", for the AMS-MAA Joint Mathematics Meeting with S. R. Jang and L. Roeger, New Orleans, LA, Jan. 5-8, 2007.

8. **CONFERENCE:** "Over the Fence: Mathematicians and Biologists Talk about Bridging the Curricular Divide," Mathematical Biosciences Institute, Ohio State University with J. Galovich, S. Deckelman, and E. Marschall, June 1-2, 2007.

9. Session: "Recent Advances in Mathematical Biology, Ecology, and Epidemiology", for the AMS-MAA Joint National Meeting with S. R. Jang and L. Roeger, San Diego, CA, Jan. 6-9, 2008.

10. Session: "Modeling in Biology, Ecology and Epidemiology" for the AMS-MAA Joint Mathematics Meetings with L. Roeger and S. R. Jang, San Francisco, CA, Jan. 13-16, 2010.

11. NIMBioS Investigative Workshop: "Mathematical Modeling of Wildlife and Viruses Zoonoses", University of Tennessee, Knoxville. Organized with C. Jonsson and P. van den Driessche, November 8-10, 2010.

12. Session, "Structured Models in Ecology, Evolution, and Epidemiology: Periodicity, Extinction, and Chaos", AMS special session at the Joint Mathematics Meetings with S. R. Jang and L. Roeger, New Orleans, Jan. 7, 2011.

13. NIMBioS Tutorial: "Stochastic Modeling in Biology". Organized with E. J. Allen and J. Xiong, University of Tennessee, Knoxville, March 16-18, 2011.

14. Workshop Organizing Committee: Workshop 4: Evolution and Spread of Disease, Mathematical Biosciences Institute with S. Blower, S. Meleard, and H. Wearing, Ohio State University, March 19-23, 2012.

15. Summer School: Organizing Committee, 2012 MBI-NIMBioS-CAMBAM Summer Graduate Program on "Stochastics Applied to Biological Systems", Mathematical Biosciences Institute with L. Marschall, chair; L. Kubatko, S. Lenhart, and L. Popovic, Ohio State University, June 18 - June 29, 2012.

16. Short Term Visit at NIMBioS, Stochastic Models for the Spread of a Vector Transmitted Viral Disease in Plant Populations, with V. Bokil, University of Tennessee, December 10-20, 2012.

17. **CONFERENCE:** The Fourth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems (ICMA IV), Texas Tech University, Chair of Organizing Committee. Organizers: E Allen, S Jang, B Ghosh, A Ibragimov, S Jang, N McIntyre, L-I Roeger, R. Strauss, October 4-6, 2013.

18. NIMBioS Investigative Workshop: "Vector Transmission of Plant Viruses". Organized with V. A. Bokil, E. T. Borer, A. G. Power and F. Van Den Bosch, March 17-19, 2014.

19. Session "Mathematical Models of Infectious Diseases in Plants, Animals and Humans", AMS Central Section Meeting, with V. A. Bokil, Texas Tech U., April 11-13, 2014.

20. MAA Invited Paper Session "Recent Advances in Mathematical Modeling of the Environment and Infectious Diseases", JMM 2015, San Antonio, Texas, January 10-13, 2015.

21. NIMBioS Working Group, "Multiscale Vectored Plant Viruses". Organized with V. A. Bokil and A. G. Power. First Meeting December 14-16, 2015; Second Meeting June 22-24, 2016; Third Meeting December 19-21, 2016, Fourth Meeting December 18-20, 2017.

PROFESSIONAL COMMITTEES:

1. WAMB (Women Advancing Mathematical Biology) Emphasis Workshop: Understanding Complex Biological Systems with Mathematics, Senior Project Leader, MBI, The Ohio State University, with A. Peace co-leader, April 24-28, 2017.

2. AWM Dissertation Prize Committee, Chair, 2016.

3. Advisory Board Committee, NIMBioS, University of Tennessee, 2015-current.

4. Scientific Advisory Committee, ICDEA2016, 22nd International Conference on Difference Equations and Applications, Osaka, Japan, July 2016.

5. Lord May Prize Selection Committee for Journal of Biological Dynamics, Chair, 2015, 2017.

6. Malaria Host Pathogen Working Group, MaHPIC, Emory University, 2014-current.

7. Board of Directors for International Society of Difference Equations, 2011-2013; 2013-2015.

8. Organizing Committee, ICMA VI, University of Arizona, 2017; Scientific Advisory Committee, ICMA V, University Western Ontario, 2015; Scientific Advisory Committee and Organizing Committee, ICMA IV, Texas Tech University, 2013.

9. Organizing Committee, Mathematical Biosciences Institute, Emphasis Year on Stochastics in Biological Systems for 2011-2012.

10. Scientific Advisory Committee, International Conference on Difference Equations and Applications, ICDEA 2011.

11. Scientific Advisory Committee, Mathematical Biosciences Institute, The Ohio State University, 2009-2011.

12. Scientific and International Organizing Committee, Third Conference on Computational and Mathematical Population Dynamics (CMPD3), Bordeaux, France, 2010.

13. Nominating Committee, SIAM Activity Group (SIAG) on Life Sciences, 2008.

14. 10th Bellman Prize Committee, *Mathematical Biosciences*, 2004.

15. Scientific Committee, Annual Meeting of the Society for Mathematical Biology, Knoxville, Tennessee, 2002.

REFEREE AND REVIEW ACTIVITIES:

1. Referee for >50 journals:

   American Journal of Epidemiology, American Midland Naturalist, The American Naturalist, Applied Mathematics and Computation, Applicable Analysis and Discrete Mathematics, Applied Mathematics Letters, Biotropica, Bulletin of Mathematical Biology, Bulletin of the Iranian Mathematical Society, Canadian Applied Mathematics Quarterly, Communications in Applied Analysis, Communications in Mathematical Sciences, Computers & Mathematics with Applications, Discrete and Continuous Dynamical Systems–Series B, Discrete Dynamics in Nature and Society, Ecological Applications, Ecology/Ecological Monographs, Ecological Modelling, Epidemics, European Physical Journal B, Evolution, Field Institute Communications Series, Frontiers in Ecology and the Environment, IEEE Transactions on Automatic Control, Indian Journal of Pure and Applied Mathematics, Infectious Disease Modelling, International Journal for Numerical Analysis and Modeling, International Journal of Mathematics and Mathematical Sciences, International Journal of Differential Equations, Inverse Problems, Journal of Applied Mathematics, Journal of the Arkansas Academy of Science, Journal of Biological Dynamics, Journal of Biological Systems, Journal of Difference Equations and Applications, Journal of Mathematical Analysis and Applications, Journal of Mathematical Biology, Journal of Mathematical Systems, Estimation and Control, Journal of the Royal Society Interface, Journal of Statistical Physics, Journal of Theoretical Biology, Letters in Biomathematics, Linear Algebra and Its Applications, Mathematical Biosciences, Mathematical Biosciences and Engineering, Mathematical and Computer Modelling, Mathematical Methods in Applied Sciences, Mathematical Population Studies, Natural Resource Modeling, Nonlinear Analysis, Notices of the AMS, Proceedings of the Royal Society, Rocky Mountain Journal of Mathematics, SIAM Journal of Applied Mathematics, SIAM Undergraduate Research Online, Statistics in Medicine, Stochastic Analysis and Applications, Stochastic Models, Theoretical Biology and Medical Modelling, Theoretical Ecology, Theoretical Population Biology, Vector-Borne and Zoonotic Diseases.

2. Referee for the following proceedings:

   Proceedings of the 2000 Third World Congress of Nonlinear Analysts, Proceedings of the 2000 Conference for African American Researchers in the Mathematical Sciences, Proceedings of the 2002 Conference on Mathematical Population Modelling held in Poland, Proceedings of the 2005 Joint Summer Research Conference on Modeling the Dynamics of Human Diseases: Emerging Paradigms and Challenges.

3. Reviewed individual NSF proposals submitted to the Divisions of Mathematical Sciences and Environmental Biology and other programs, 1994-2015.

4. *NSF and NIH Review Panels and Workshops:* 1995-1997, 2000-2004, 2007-2010, 2012, 2014-2015, 2017.

5. Centers for Disease Control and Prevention Panel, 2007.

6. *Expert Evaluator and Reviewer:*

   - Mathematics of Information Technology and Complex Systems (MITACS) of Canada. MITACS is a federally funded Network of Centres of Excellence in Canada which includes the Centre de recherches mathématiques, Université de Montréal, The Fields Institute for Research in Mathematical Sciences, Toronto and The Pacific Institute for the Mathematical Sciences, Vancouver, 2001, 2005, 2008.
   - National Science and Engineering Council (NSERC) of Canada. NSERC is a government funding agency of Canada that supports both basic university research through discovery grants and project research through partnerships among universities, governments and the private sector, 2000, 2006, 2007, 2008, 2011-2013, 2015, 2018.
   - University of Antwerpen Research Council, Belgium, 2007.
   - Texas Higher Education Coordinating Board, Minority Health Research and Education Grant Program, 2001.

UNIVERSITY SERVICE:

Committees, Offices Held:

1. University Blue Ribbon Search Committee in the Sciences, 2015.

2. Departmental Chair Search Committee, Department of Mathematics and Statistics, 2015-2016.

3. Arts and Sciences Research Council, 1991-1994.

4. Arts and Sciences Committee on Academic Programs (ASCAP), 1996-1999.

5. Arts and Sciences Tenure and Promotion Committee, 1999-2002.

6. Promotion Advisory Committee J McComb, Department of Health, Exercise, and Sport Sciences, 2003.

7. Multidisciplinary Seed Grant Review Panel for Fall 2002 and Fall 2004 programs.

8. Internal Program Review Committee for Department of Biological Sciences, 2001.

9. Panel Member for the Thesis/Dissertation Symposium, May 2002.

10. Arts and Sciences Mentoring program, 2000-2003, 2005.

11. Paul Whitfield Horn Fellowship Committee, University Quarterly Club, 1989-1991.

12. Arts and Sciences Paul Whitfield Horn Selection Committee.

13. Vice President (1990-1991) and President (1991-1992), Texas Tech Chapter of the Texas Association of College Teachers.

14. Membership on more than 40 Graduate Advisory Committees.

PAUL WHITFIELD HORN Professorship:

Sponsored Departmental/University Events:

1. Established and funded the Institute Partnership with the Mathematical Biosciences Institute, Ohio State University in 2011. Supports interactions with MBI and and the Departments of Mathematics and Statistics and Biological Sciences at TTU. 2011-current.

2. Established and funded the Annual Public Distinguished Mathematics Lecture Series, 2012-2016: October 2012: First Distinguished Lecturer, H. T. Banks, North Carolina State University; March 2014: Second Distinguished Lecturer, J. P. Keener, University of Utah; March 2015: Third Distinguished Lecturer, Bernd Sturmfels, UC Berkeley; April 2016: Fourth Distinguished Lecturer, Reinhard Laubenbacher, U Conn Health.

3. The **Fifteenth** Red Raider Minisymposium: Spatial Inference on Manifolds, Spatial Statistics, Statistics on Manifolds, Differential Geometry, and Computational Science, November 6-7,2015. The **Sixteenth** Red Raider Minisymposium: Commutative & Homological Algebra, October 26-28, 2017.

4. Accommodations and travel for five visiting postdoctoral associates and one faculty, from US and Canadian institutions, as part of the Women Advancing Mathematical Biology (WAMB) subgroup on superspreading. July 28-August 1, 2017.

DEPARTMENTAL SERVICE:

Committees:

1. Hiring Committee for Biomathematics Position, Chair, 2016-2017.
2. Hiring Committee, 1993-1997, 2000-2001, 2003-2004, 2010-2011, 2014-2015.
3. Executive Committee, 1999-2001, 2004-2006, 2007-2009, 2013-2015.
4. Distinguished Public Lecturer Committee, 2012-current.
5. Travel Committee, 2013.
6. Graduate Committee, 1988-1992, 2002-2004, 2006-2008.
7. Search Committee, Dick and Martha Brooks Regents Endowed Professorship, 2004-2006.
8. Comprehensive Review Committee, 2002-2003.
9. Third Year Review Committees, 2004, 2005, 2010, 2011.
10. Undergraduate Committee, 1994-1995.
11. Strategic Planning Committee, 2000-2001.
12. Awards Committee, 2001-2002.
13. Coorganized sessions on Mathematics at TTU Girl Scout Conferences, 1993, 1994, 1995.

Faculty Advisor and Course Development:

- Developed Graduate Courses: Biomathematics I and II and Topics in Biomathematics.
- Advisor for freshmen and transfer mathematics majors, 1994-1998.
- Faculty Advisor to the Undergraduate Student Chapter of MAA, 1991-1995.

Other:

- Organizer and Speaker in the Departmental Biomathematics Seminar, 1991-2005, 2007-2017.
- Organized Sessions and workshops for Emmy Noether High School Day, 2003, 2004, 2010, 2011.
- Career Panel, Emmy Noether High School Day, 2013.
- Mentor to Junior Faculty, 2000-current.