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Jeremy J. Thibodeaux

Education

Ph.D. in Mathematics, University of Louisiana at Lafayette May 2007
M.S. in Mathematics, University of Louisiana at Lafayette December 2004
B.S. in Mathematics, University of Louisiana at Lafayette December 2002

Professional Experience

Associate Professor of Mathematics, Loyola University New Orleans, August 2014-present
Fulbright US Scholar, Pontificia Universidad Javeriana, Cali, Colombia, July-December 2018
Assistant Professor of Mathematics, Loyola University New Orleans, August 2010-August 2014
Assistant Professor of Mathematics, University of Central Oklahoma, August 2007-May 2010
Teaching/Research Assistant, University of Louisiana at Lafayette, January 2003-May 2007

Teaching

Courses Taught

Math T122: Math Models, Loyola University New Orleans
Math A116: Survey of Calculus, Loyola University New Orleans
Math A117: Pre-Calculus, Loyola University New Orleans
Math A117: Concepts in College Algebra, Loyola University New Orleans

Math A257: Calculus I, Loyola University New Orleans
Math A258: Calculus II, Loyola University New Orleans
Math A310: Introduction to Differential Equations, Loyola University New Orleans
Math A341: Statistical Theory and Methods, Loyola University New Orleans
Math A360: Biomathematics, Loyola University New Orleans
Math A375: Computational Mathematics, Loyola University New Orleans
Math A410: Advanced Calculus I, Loyola University New Orleans
Math A411: Advanced Calculus II, Loyola University New Orleans
Math A498: Richardson's Extrapolation, (Student research project), Loyola University New Orleans
Math 1453: College Algebra for Business, University of Central Oklahoma
Math 1513: College Algebra, University of Central Oklahoma
Math 2153: Bio-Calculus, University of Central Oklahoma
Math 2313: Calculus I, University of Central Oklahoma
Math 2323: Calculus II, University of Central Oklahoma
Math 2333: Calculus III, University of Central Oklahoma
Math 3103: Differential Equations, University of Central Oklahoma
Math 4910/5910: Partial Differential Equations, University of Central Oklahoma
Math 092: Elementary/Intermediate Algebra, University of Louisiana at Lafayette
Math 105: College Algebra, University of Louisiana at Lafayette
Math 201: Finite Mathematics, University of Louisiana at Lafayette

Research

My research interests are in ordinary and partial differential equations, numerical analysis, and mathematical modeling of biological and social systems. My work thus far has been a blend of theoretical and computational investigations. I have also recently studied zero-divisors of certain

subsets of commutative rings and the existence of periodic solutions of certain micro-electro-mechanical systems (MEMS).

1. A. Rivera, J.J. Thibodeaux, J. Sanchez, Existence and stability of periodic solutions in a shifted Comb-drive finger actuator, (accepted and in revision).
2. J.J. Thibodeaux, D. Nuñez, A. Rivera, A generalized within-host model of dengue infection with a non-constant monocyte production rate, *Journal of Biological Dynamics*, 14, 143-161 (2020).
3. S. Logan, J.J. Thibodeaux, R.P. Tucci, When is the derivative an appropriate approximation for marginal revenue and marginal cost?, *Pi Mu Epsilon Journal*, 14, 463-467 (2017).
4. J.J. Thibodeaux, M. Hennessey, A within-host model of dengue infection with a non-constant monocyte production rate, *Applied Mathematics*, 7, 2382-2393 (2016).
5. R.L. Miller, J.J. Thibodeaux, R.P. Tucci, Zero-divisor graphs of finite direct products of finite non-commutative rings and semigroups, *Journal of Algebra, Number Theory: Advances and Applications*, 14, 1-9 (2015).
6. L. Birch, J. Thibodeaux, and R.P. Tucci, Zero divisor graphs of finite direct products of finite rings, *Communications in Algebra*, 42, 3852-3861 (2014).
7. A.S. Ackleh, B. Ma, and J.J. Thibodeaux, A second-order high resolution finite difference scheme for a structured erythropoiesis model subject to malaria infection, *Mathematical Biosciences*, 245, 9-11 (2013).
8. A.S. Ackleh and J.J. Thibodeaux, A second-order finite difference scheme for a mathematical model of erythropoiesis, *Numerical Methods for Partial Differential Equations*, 29, 1821-1836 (2013).
9. J.J. Thibodeaux and Timothy Schlittenhardt, Optimal treatment strategies for malaria infection, *Bulletin of Mathematical Biology*, 73, 2791-2808 (2011).
10. J.J. Thibodeaux, Modeling erythropoiesis subject to malaria infection, *Mathematical Biosciences*, 225, 59-67 (2010).

11. R. Scribner, A.S. Ackleh, B.G. Fitzpatrick, G. Jacquez, J.J. Thibodeaux, R. Rommel, N. Simonsen, A systems approach to college drinking: Development of a deterministic model for testing alcohol control policies, *Journal of Studies on Alcohol and Drugs*, 70, 805-821 (2009)
12. A.S. Ackleh, B.G. Fitzpatrick, R. Scribner, J.J. Thibodeaux, N. Simonsen, Ecosystems modeling of college drinking: Parameter estimation and comparing models to data, *Mathematical and Computer Modelling*, 50, 481-497 (2009).
13. A.S. Ackleh and J.J. Thibodeaux, Parameter estimation for a mathematical model of erythropoiesis, *Mathematical Biosciences and Engineering*, 5, 601-616 (2008).
14. A.S. Ackleh, K. Deng, and J.J. Thibodeaux, An explicit finite difference scheme for a structured erythropoiesis model, *Proceedings of the 5th International Conference on Dynamical Systems and Applications*, Atlanta, Georgia, May 30-June 2, 2007.
15. A.S. Ackleh, K. Deng, and J.J. Thibodeaux, A monotone approximation for a hierarchical size-structured model with a generalized environment, *Journal of Biological Dynamics*, 1, 305-319, (2007).
16. A.S. Ackleh, K. Deng, and J.J. Thibodeaux, A structured erythropoiesis model with nonlinear cell maturation velocity and hormone decay rate, *Mathematical Biosciences*, 204, 21-48 (2006).
17. J.J. Thibodeaux, Congruences modulo a product of primes, *Pi Mu Epsilon*, 11, 499-500 (2003).

Conference Presentations

1. Modeling and optimization of within-host dengue infection, Javeriana University, Cali, Colombia, November, 2018.
2. A within-host model of dengue infection with a non-constant monocyte production rate, Colloquium, Javeriana University, Cali, Colombia, July 2016.
3. Parameter Estimation: Techniques and Applications, Colloquium, Javeriana University, Cali, Colombia, July, 2016.

4. J.J. Thibodeaux, Timothy Schlittenhardt, Optimal Treatment Strategies for Malaria Infection, Colloquium, Javeriana University, Cali, Colombia, June 19, 2014.
5. Savannah Logan, J.J. Thibodeaux, Zero Divisors, Marginal Economics, and Gronwall's Inequality, Sectional meeting of the MAA, Baton Rouge, Louisiana, LSU, March 6-8, 2014.
6. A second-order finite difference approximation for a mathematical model of erythropoiesis, Joint AMS-MAA meeting, Boston, MA, January 4-7, 2012.
7. Optimal treatment strategies for malaria infection, 8th European Conference on Mathematical and Theoretical Biology, Krakow, Poland, June 28-July 2, 2011.
8. Optimal treatment strategies for malaria infection, Third Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 20-25, 2011 (Invited).
9. Optimal treatment strategies for malaria infection, Joint AMS-MAA meeting, New Orleans, LA, January 6-9, 2011.
10. Optimal treatment strategies for malaria infection, UL Lafayette colloquium, Lafayette, LA, October 28, 2010.
11. Seeking optimal treatment strategies for malaria infection, Joint AMS-MAA meeting, San Francisco, CA, January 13-16, 2010 (Special session on biomathematics), (Invited).
12. Seeking optimal treatment strategies for malaria infection, Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver, B.C., Canada, July 27-30, 2009, (Special session on malaria modeling), (invited).
13. A mathematical model of erythropoiesis subject to malaria infection, First Conference of the Euro-American Consortium for Promoting the Application of Mathematics in Technical and Natural Sciences, Albena, Bulgaria, June 22-27, 2009 (Invited).
14. Modeling erythropoiesis subject to malaria infection, Joint AMS-MAA meeting, Washington D.C., January 5-9, 2009.
15. Parameter estimation for a mathematical model of erythropoiesis, Joint AMS-MAA meeting, San Diego, CA, January 6-9, 2008.
16. Size-structured population models and their application to erythropoiesis, Workshop on Control Theory and Mathematical Biology, Louisiana State University, July 26-27, 2007.

17. A monotone approximation for a hierarchical size-structured model with a generalized environment, Joint AMS-MAA meeting, New Orleans, LA, January 5-8, 2007.
18. A structured erythropoiesis model with nonlinear cell maturation velocity and hormone decay rate, Annual meeting of the MAA, Louisiana/Mississippi Section, February 16-18, 2006.
19. A structured erythropoiesis model with nonlinear cell maturation velocity and hormone decay rate, Joint AMS-MAA meeting, San Antonio, TX, January 12-15, 2006.

Grants and Awards

1. Fulbright Scholar Award, Seeking optimal treatment for dengue infection, \$26,000, July 2018-December 2018.
2. Principal Investigator (with Savannah Logan), Louisiana State Board of Regents (SURE grant), Zero-divisors in Matrix Rings, 2013-2014, \$4,500.
3. Principal Investigator, Loyola University New Orleans, Marquette Fellowship, Developing a Mathematical Model of Dengue Infection, Summer 2013, \$9500.
4. Principal Investigator, Oklahoma State Regents of Higher Education, Developing a Biological Calculus Course, Fall 2009, \$8500.
5. Principal Investigator, Oklahoma State Regents of Higher Education, Seeking Optimal Treatment Strategies for Malaria Infection, 2009-2010, \$25,000.
6. Principal Investigator, Oklahoma State Regents of Higher Education, Modeling Erythropoiesis Subject to Malaria Infection: Model Formulation, Analysis, and Simulation, 2008-2009, \$20,000.

Service

Reviewed research articles for Natural Resource Modeling, The Bulletin of Mathematical Biology, Journal of Mathematical Biology, and Mathematical Biosciences.

Advisor of 20 students.

Faculty sponsor for students participating in the Putnam competition.

Faculty sponsor for students that participate in the competition at the annual sectional meeting of the Mathematical Association of America.

Organized the 97th Annual Meeting of the Louisiana/Mississippi Section of the MAA, hosted by Loyola University New Orleans on February 27-29, 2020. The meeting had over 150 attendees.

Served on various college and university committees, including the Standing Committee for the Loyola Core, the College Curriculum Committee, and the College Planning Team.

Current chair of the Department of Mathematics and Computer Science.