

# REBECCA ANNE SEGAL

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Department of Mathematics  
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## EDUCATION:

**Ph. D. in Applied Mathematics** August 2001  
(Concentration in Computational Mathematics)  
North Carolina State University, Raleigh, NC  
"Patterns of air flow and particle deposition in the diseased human lung"  
Advisor Prof. Michael Shearer.

**BA in Mathematics** May 1994  
Bryn Mawr College, Bryn Mawr, PA

## CURRENT POSTION:

**Director of Graduate Studies** August 2017-present  
Department of Mathematics  
Virginia Commonwealth University, Richmond, VA

**Associate Professor** August 2013-present  
Department of Mathematics  
Virginia Commonwealth University, Richmond, VA

## PREVIOUS POSITIONS:

**Assistant Professor** August 2006-August 2013  
Department of Mathematics  
Virginia Commonwealth University, Richmond, VA

**Temporary Teaching Fellow** September 2005-August 2006  
Mathematics Department  
University of Bristol, Bristol, UK

**Part-time Lecturer** January 2005-August 2005  
Mathematics Department  
University of Bristol, Bristol, UK

**Postdoctoral Fellow** July 2001-December 2004  
CIIT Centers for Health Research  
Research Triangle Park, NC

## HONORS/AWARDS:

1. AWM service award, 2016
2. Travel funds from AWM for \$1400 to attend SMB meeting in Knoxville, 2012
3. Travel funds from AWM for \$1200 to attend SMB meeting in Toronto, 2008
4. Fellow, Center for the Study of Biological Complexity, 2007

## RESEARCH:

### Publications

#### *Journal Publications (Refereed)*

1. Strychalski W. et al. (2018) Fluid Dynamics of Nematocyst Prey Capture. In: Radunskaya A., Segal R., Shtylla B. (eds) Understanding Complex Biological Systems with Mathematics. Association for Women in Mathematics Series, vol 14. Springer, Cham
2. P-M. Salomonsky and R.A. Segal, “A mathematical system for human implantable wound model studies”, Letters in Biomathematics Vol. 4 , Iss. 1. 2017
3. J. Foo, C. Haskell, R.A. Segal, N. Komarova “Modeling Sympatric Speciation in Quasiperiodic Environments” in Applications of Dynamical Systems in Biology and Medicine; Jackson, T and Radunskaya, A. eds. Volume 158 in The IMA Volumes in Mathematics and its Applications. Pages 149-174. 2015
4. R.L. Cooper, R.A. Segal, R.F. Diegelmann, A.R. Reynolds “Modeling the effects of systemic mediators on the inflammatory phase of wound healing.” Journal of Theoretical Biology. Volume 367, 21 February 2015, Pages 86–99
5. RA Segal, RF Diegelmann, KR Ward, A Reynolds “A Differential Equation Model of Collagen Accumulation in a Healing Wound” Bulletin of Mathematical Biology. 2012(74):2165–2182 (IF=1.847)
6. NB Menke, JW Cain, DM Chan, RA Segal, TM Witten, DG Bonchev, RF Diegelmann, KR Ward. An *In Silico* Approach to the Analysis of Acute Wound Healing. Wound Repair and Regeneration. 2010(18): 105–113. (IF=2.445) [Corresponding author]
7. GJM Garcia, JD Schroeter, RA Segal, J Stanek, GL Foureman, JS Kimbell. Dosimetry of nasal uptake of soluble and reactive gases: a first study of inter-human variability. Inhalation Toxicology. 2009, 21(7): 607–618. (IF=1.831)
8. RA Segal, GM Kepler, JS Kimbell. Effects of Differences in Nasal Anatomy on Airflow Distribution: A Comparison of Four Individuals At Rest. Annals of Biomedical Engineering. 2008(36): 1870-1882. (IF = 2.346)
9. J.S. Kimbell, R.A. Segal, B Asgharian, B.A. Wong, J.D. Schroeter, J.P Southall, C.J. Dickens, G Brace, F.J. Miller. “Characterization of Deposition from Current Nasal Spray Devices Using a Computational Fluid Dynamics Model of the Human Nasal Passages.” J. of Aerosol Medicine. 2007(20): 59-74. (IF=1.945)
10. D. Wexler, R.A. Segal, J.S. Kimbell. “Aerodynamic effects of inferior turbinate reduction – Computational fluid dynamics simulation” Archives of Otolaryngology – Head & Neck Surgery. 2005(131): 1102-1107. (IF=1.734)
11. R.A. Segal, T.B. Martonen, C.S. Kim, M. Shearer. “Computer Simulations of Particle Deposition in the Lungs of Chronic Obstructive Pulmonary Disease Patients” Inhalation Toxicology 2002(14):705-720. (IF=2.167)
12. Martonen, T. B., Musante, C. J., Segal, R. A., Schroeter, J. D., Hwang, D., Dolovich, M. A., Burton, R., Spencer, R. M., and Fleming, J. S. “Lung models: strengths and limitations” Respiratory Care 2000(45):712-736.
13. X. Guan, R.A. Segal, M. Shearer, T.B. Martonen. “Mathematical Model of Airflow in the Lungs of Children II: Effects of Ventilatory Parameters” Journal of Theoretical Medicine. 2000(3):51-62.
14. R.A. Segal, T.B. Martonen, C.S. Kim. “Comparison of Computer Simulations and Human Data for Particle Deposition in Healthy Subjects” Journal of Air and Waste Management Association 2000(50):1262-1268.
15. R.A. Segal, X. Guan, M. Shearer, T.B. Martonen. “Mathematical Model of Airflow in

the Lungs of Children I: Effects of Tumor Sizes and Locations” Journal of Theoretical Medicine. 2000(2):199-213.

*Book Publication*

1. Radunskaya A., Segal R., Shtylla B. (eds) Understanding Complex Biological Systems with Mathematics. Association for Women in Mathematics Series, vol 14. Springer, Cham
2. R.A. Segal and A.R. Reynolds “A Review of Mathematical Models of Inflammation” invited book chapter in Basic Biology and Mechanisms of Inflammation 2016
3. RA Segal “Air flow and particle deposition: Patterns in the diseased human lung” 2010 VDM Publishing  
[http://www.amazon.com/Air-flow-particle-deposition-Patterns/dp/3639295277/ref=sr\\_1\\_11?ie=UTF8&qid=1303406661&sr=8-11](http://www.amazon.com/Air-flow-particle-deposition-Patterns/dp/3639295277/ref=sr_1_11?ie=UTF8&qid=1303406661&sr=8-11)

*Newsletter Feature*

1. R.A. Segal, J.M. Sheppard, J.S. Kimbell. “Using Fieldview to Locate the Nasal Valve in a CFD Model of the Human Nasal Passages” Fluent News 2003 (12):15.

Grants Awarded

1. INCLUDES WATCH-US mini-grant “C3PO: Core knowledge, Community, and Confidence through a Programming Overview”: \$2000
2. PI (With Angela Reynolds) NSF Conference Grant “BAMM! Biology and Medicine through Mathematics” travel funds : \$12,139
3. SIAM Conference Grant for BAMM! 2018 : \$6000
4. Co-PI (With Angela Reynolds, Shobha Ghosh) VCU Presidential Research Quest Fund (PeRQ Fund) award: \$39,148.
5. Collaborative Research: A National Consortium for Synergistic Undergraduate Mathematics via Multi-institutional Interdisciplinary Teaching Partnerships (SUMMIT-P), \$2,648,636, PI of VCU component (\$333,268).
6. Co-Pi (With Angela Reynolds) NSF Conference Grant “BAMM! Biology and Medicine through Mathematics” travel funds : \$10,000
7. SMB conference support grant for BAMM! : \$2000
8. Joint PI (With Angela Reynolds) Jeffress Grant 2011-2012 “Mathematical Modeling of the Effects of Systemic Cortisol and Estrogen on Wound Healing Treatments”: \$21,250
9. Joint PI (With Angela Reynolds) Jeffress Grant Renewal 2012-2013 “Mathematical Modeling of the Effects of Dynamic Oxygen on Wound Healing Treatments”: \$10,000

Grants Submitted

1. Co-PI (With Cheng Ly and Angela Reynolds) NSF Conference Grant “BAMM! Biology and Medicine through Mathematics” travel funds : \$12,139
2. Entice, Explore, and Encourage the Path to Graduate School in Mathematics (E<sup>3</sup>), co-PI (Marco Aldi PI, Brent Cody, Erica Miller), NSF \$368,369, submitted December 2018.
3. NSF Conference Grant “BAMM! Biology and Medicine through Mathematics” travel funds, co-PI (Cheng Ly PI, Angela Reynolds) : \$15,000, submitted October 2018.
4. Exploring, Enticing and Encouraging the Path to Graduate School in Mathematics (E<sup>3</sup>), co-PI, NSF \$211,045, submitted December 2017.

5. Collaborative Research: A National Consortium for Synergistic Undergraduate Mathematics via Multi-institutional Interdisciplinary Teaching Partnerships (SUMMIT-P), \$2,970,892, PI of VCU component, submitted Jan 2015
6. NIH P-50 “Research Center on Critical Care and Lipid Mediators (CCaLM)” co-PI: \$8,100,000; 2014
7. NSF grant for curriculum coordination with STEM departments “Collaborative Research: A National Consortium for Synergistic Undergraduate Mathematics via Multi-institutional Interdisciplinary Teaching Partnerships (SUMMIT-P)”. PI for VCU component (total budget, VCU budget \$331,219); 2014
8. CCTR Quantifying the Severity and Healing of Diabetic Foot Ulcers using Mathematics and Engineering Approaches co-PI: \$129,400; 2014
9. PI ( with co-PI Angela Reynolds) Joint DMS/NIGMS Initiative to Support Research at the Interface of the Biological and Mathematical Sciences “Patient-Specific Treatment Protocol for Chronic Ulcers: Modeling and Validation”: \$1,977,127; 2012

### Presentations

#### *Invited*

1. Development of a mathematical model for the role of inflammation in atherosclerosis, JMM, Baltimore, January 2019
2. Connecting Partner Disciplines with Mathematics through Applications in Differential Equations, JMM, Baltimore, January 2019
3. INCLUDES WATCH-US Mini-grant: C3PO (Core knowledge, Community, and Confidence through a Programming Overview), MathFest, Denver, August 2018
4. Toward an ODE model for the contribution of macrophages to disease progression, SIAM-SEAS, UNC-CH, March 2018
5. Collaboration Conversations for Differential Equations (a SUMMIT-P collaboration). JMM, San Diego, January 2018
6. Differential Equations Heal all Wounds, Colloquium, VT, Blacksburg, VA Dec 2017
7. Differential Equations Heal all Wounds, Colloquium, JMU, Harrisonburg, VA Jan 2017
8. Differential Equations Heal all Wounds, Colloquium IUPUI, Indianapolis, Dec 2016
9. Towards a Personalized Model of Wound Healing, Society of Mathematical Biology Annual Meeting, Nottingham, July 2016
10. Modeling Sympatric Speciation In Quasiperiodic Environments, Society of Mathematical Biology Annual meeting Atlanta, July 2015
11. Overview of Mathematical Modeling of Wound Healing, Plenary Speaker, Biomathematics and Ecology: Education and Research (BEER), Marymount University, October 2013
12. Wound Healing Models, Murray State University, Colloquium, March 2013
13. Overview of Modeling Techniques for Wound Healing, Society of Mathematical Biology Annual meeting Knoxville, July 2012
14. Nanoparticle Deposition in the Human Nasal Passages. Invited Talk at Joint Mathematics Meeting, Boston, January 2012
15. Modeling the Effects of Systemic Cortisol and Estrogen on Wound Healing. Invited Talk at AMS Sectional Meeting, Wake Forest University, October 2011
16. Modeling the Effects of Systemic Cortisol and Estrogen on Wound Healing. Invited Talk at AWM 40<sup>th</sup> and Forward, Brown University, September 2011
17. Deposition Patterns of Nanoparticles in Human Nasal Passages. Invited Talk at Joint Mathematics Meeting, New Orleans January 2011

18. A Model of Wound Healing via Collagen Accumulation. Invited Talk at American Mathematical Society regional meeting at University of Richmond. November 2010
19. An ODE Model of Collagen Accumulation during Wound Healing. Invited Talk Society of Industrial and Applied Mathematics-Life Sciences meeting. Pittsburgh July 2010
20. Effect of Nasal Geometry on Respiratory Health. Invited seminar speaker, Virginia State University, Petersburg. November 2009.
21. Analyzing Complexities of Wound Healing, Society of Mathematical Biology Annual meeting Vancouver, July 2009.
22. The Dynamics of a Healing Wound, Complex Biological Systems Group Theme Days at University of Pittsburgh, May 2009
23. Invited Guest Lecturer at Old Dominion University, Norfolk. Course in math modeling for health science majors, 3 hour lecture. April 2009.
24. Special Session on Mathematical Modeling in Wound Healing at 2008 Annual Meeting of the Society of Mathematical Biology, Toronto, July 2008
25. Nasal Geometry Impact on Health of Individuals Differential Equations Seminar, University of Virginia, Charlottesville, March 11, 2008
26. Inter-individual Differences in Nasal Airflow Distribution. Frontiers in Applied Mathematics, Newark, May 2007.
27. What Good is Your Nose? Bristol Laboratory for Advanced Dynamics Engineering (BLADE) Seminar Series, Bristol, October 2004.
28. Three-Dimensional Computer Modeling of the Human Upper Respiratory Tract. 10th Congress of the International Rhinologic Society and 22nd International Symposium on Infection and Allergy of the Nose Seoul, October 2003.

*Contributed*

1. Systemic Influences on the Inflammatory Phase of Wound Healing, Biomathematics and Ecology: Education and Research (BEER), Charleston, SC Oct 2016
2. Effect of Cortisol on Wound Healing (poster with Angela Reynolds) at the Math Bio Institute Tissue Engineering Workshop, Columbus, April 2012
3. In Silico Approach to the Analysis of Acute Wound Healing (poster with Angela Reynolds) at the Math Bio Institute Wound Healing Workshop, Columbus, March 2009
4. Overview of Current Trends in Biomath, Inaugural Biomath Seminar Series talk, VCU, September 2008
5. Nasal Airflow Distribution in Human Subjects SIAM Life Sciences, Montreal, August 2008
6. Mathematical Model for Wound Healing. Annual Southeast-Atlantic Region Conference on Differential Equations, Murray State, Murray, KY October 2007
7. Airflow in the nasal passages – effect of boundary conditions. British Applied Mathematics Colloquium, Bristol, April 2007.
8. Three-Dimensional Computer Modeling of the Human Nasal Passages. British Applied Mathematics Colloquium, Liverpool, April 2005.
9. Correlation of Nasal Surface-Area-to-Volume Ratio with Predicted Inhaled Gas Uptake Efficiency in Humans. Society of Toxicology Annual Meeting, Baltimore, March 2004.
10. Effects of Differences in Nasal Anatomy on Airflow Distribution: A Comparison of Three Individuals. Society of Toxicology Annual Meeting, Salt Lake City, March 2003.
11. Effects of boundary conditions on particle deposition predictions in human nasal passages. Fourth World Congress Biomechanics, Calgary, August 2002.
12. Effects of boundary conditions on particle deposition predictions in human nasal passages. Association of Woman in Mathematics Workshop at the Annual Society of

- Industrial and Applied Mathematics Conference, Philadelphia, July 2002.
13. Automating Three-Dimensional Mesh Reconstruction of Human Nasal Airways from Digitized MRI Scans. FIDAP 2002 Users' Group Meeting, Evanston, June 2002.
  14. Mesh Construction of Human Nasal Airways from Medical Images for Use in Flow Simulations. Postdoctoral Seminar, CIIT Centers for Health Research, Research Triangle Park, NC, May 2002.
  15. Particle Trajectories in the Cancerous Lungs of Children PM 2000: Particulate Matter and Health. Charleston, Jan 2000.
  16. Comparison of Computer Simulations and Human Data for Particle Deposition in Healthy Subjects. PM 2000: Particulate Matter and Health, Charleston, Jan 2000.
  17. Particle Deposition in Airway Disease Models. Southeast Regional Mathematics in Industry Workshop, Raleigh, Oct 1999.
  18. Comparison of Particle Deposition in Healthy Subjects and COPD Patients Using Computer Simulations and Human Data. Third Colloquium on Particulate Air Pollution and Human Health, Durham, June 1999.
  19. Mathematical Model of Airflow in a Child's Lung. Association of Woman in Mathematics Workshop at the Annual Society of Industrial and Applied Mathematics Conference, Atlanta, May 1999.
  20. Comparison of Computer Simulations and Human Data for Particle Deposition in Healthy and COPD Subjects. Annual Society of Toxicology Meeting, New Orleans, March 1999.
  21. Mathematical Model of Effects of Carcinomas on Airflow Patterns in the Lungs of Children. Annual Society of Toxicology Meeting, New Orleans, March 14-18, 1999.
  22. Environmental Simulations with the Cray T90: Effects of Air Pollutants on Children's Lungs. 1997 Cray Fellows Research Day, North Carolina Supercomputing Center, May 1998.
  23. Simulation of Airflow in a Child's Lung. Second National SIAM Student Conference, SIAM-SEAS Conference, Florida State University, Tallahassee, March 1998. Featured Student Talk.
  24. Effects of Air Pollution in the Lung. Modeling Discussion Group, EPA, NC August 1997.
  25. Environmental Simulations with the Cray T90: Effects of Air Pollutants on Children's Lungs. Cray Grant Program Review Day, North Carolina Supercomputing Center, May 1997.
  26. Flow through a Multi-branching Airway. SIAM-SEAS Conference, NCSU, April 1997.

### Society Memberships

1. Society of Mathematical Biology (SMB)
2. Association of Women in Mathematics (AWM)
3. Society of Industrial and Applied Mathematics (SIAM)  
Life Sciences (Working Group)

### Workshops

1. WIMB (Women in Mathematical Biology) at Institute for Pure and Applied Mathematics, Los Angeles, CA, June 2019 [organizer]
2. WAMB (Women Advancing Mathematical Biology) at Mathematical Biosciences Institute, Columbus, OH, April 2017 [organizer]
3. NIMBioS Workshop - 3 day workshop on Lymphoid Cells in Acute Inflammation in

January 2015

4. WhAM! (Women in Applied Mathematics) Workshop at the Institute of Applied Mathematics, Minneapolis, MN, September 2013
5. Otolaryngology for Non-otolaryngologist at VCU, April 2007 which was a continuing education course sponsored by MVC to meet some MCV nasal surgeons for possible collaboration as well as to learn more about nasal disease.
6. Mathematical Modeling of Wound Healing at the Math Bio Institute at Ohio State University, Columbus, March 2009
7. Tissue Regeneration Workshop, Math Bio Institute at Ohio State University Columbus, May 2012

## TEACHING:

### Courses taught

- MATH 141 – College Algebra with Modeling Applications
- MATH 301 – Differential Equations
- MATH 307 – Multivariate Calculus
- MATH 380 – Introduction to Mathematical Biology
- MATH 515 – Numerical Analysis I
- MATH 516 – Numerical Analysis II
- MATH 533 – Partial Differential Equations
- MATH 582 – Computation Methods in Mathematical Biology
- MATH 582 – New version Mathematical Modeling in Biology: Partial Differential Equations
- MATH 591 – Introduction to Analysis for Educators
- MATH 585 – Biomath Seminar – Topic: Fluids
- MATH 691 – Special Topics: Choosing a research advisor
- MATH 715 – Numerical Solutions to PDEs
- MATH 769 – Special Topics in Applied Mathematics (Immersed Boundary Method)
- SYSM 681 – Seminar I Review of literature
- SYSM 682 – Seminar II Journal article
- SYSM 683 – Seminar III Proposal preparation

### New courses developed

- MATH 582 – Mathematical Modeling in Biology: Partial Differential Equations
  - Complete overhaul of the old course for the revised Biomath concentration. No textbook available, created own materials.
- MATH 715 – Advanced Numerical Analysis
  - New course in development for Ph.D. students. To be offered Spring 2013.
- MATH 591 – Advanced Calculus for Teachers
  - New course developed. This course required teaching advanced theoretical calculus to high school teachers.
- MATH 585 – Biomath Seminar
  - This is a new course developed as part of the undergraduate track for math majors in mathematical biology. This course requires students to read and discuss current and historically relevant papers in mathematical biology.
- MATH 582 – Computational Modeling in Mathematical Biology.

- This is a new course developed as part of the new undergraduate/graduate track for math majors in mathematical biology. We explored a variety of biological systems and developed mathematical models and then solved the models computationally.
- MATH 515 – Numerical Analysis I
- MATH 516 – Numerical Analysis II
  - Revamped this course sequence using Matlab.
- MATH 769 – Special Topics in Applied Mathematics: Immersed Boundary Method

#### MATH 141 – College Algebra, Faculty Coordinator

- Funding from Vice Provost for Instruction for Math 141 Support
  - \$4800 for Professional Development for Math 141 Instructors, Fall 2016
  - \$4800 for Professional Development for Math 141 Instructors, Fall 2015
  - \$4800 for Professional Development for Math 141 Instructors, Fall 2014
  - \$4800 for Professional Development for Math 141 Instructors, Fall 2013
  - \$4792 for Professional Development for Math 141 Instructors, Fall 2012
  - \$4000 for additional development of Lon-CAPA material, Summer 2012
  - \$9434 for Professional Development for Math 141 Instructors, Fall 2011
- Invited Talk “Successful Strategies for Teaching College Algebra”, STEM Education Conference, VMI, October 2012
- Coordinate professional development for the instructors by conducting training workshops; oversee weekly curriculum meetings: instituted and coordinate peer classroom visits.
- Oversee common assessments (quizzes, tests and final exam).
- Oversee annual revision of course pack workbook. Because the format of the course is data driven, it is a large undertaking to keep the data current and relevant.
- Furniture committee for classrooms, 2016
- Facilitated creation of Algebra Boot Camp, 2019

#### CTE Podcasting Program

- Participant in first CTE podcasting program to explore uses of this new technology for educational purposes.

#### CTE Tablet Program

- Participant in the CTE tablet program to explore uses of this new technology for educational purposes.

#### Graduate Student Advising

- Masters Thesis advisor
  - Elora Frye, “MATERIAL THERMAL PROPERTY ESTIMATION OF FIBROUS INSULATION: HEAT TRANSFER MODELING AND THE CONTINUOUS GENETIC ALGORITHM”, May 2018
  - Jeremy Myers, “Computational Fluid Dynamics in a Terminal Alveolated Bronchiole Duct with Expanding Walls: Proof-of-Concept in OpenFOAM”, August 2017
  - Paul Solomonsky “A Partial Differential Equation Analysis of Implantable Wound Repair Models”, August 2013
  - Gigi Meyer “ODE Model of Krohn’s Disease”, August 2013
  - Nicole O’Neil “An Agent Based Model of Tumor Growth and Response to Radiotherapy”, August 2012



- Cheri Doucette “Modeling the Barrier-Effect of Roadways: A Cellular-Automata Neighborhood”, May 2012
- Kalimah Vereen “SIR model of Malaria with vaccine”, May 2008
- Committee member Ph.D in Mathematics students
  - Nika Lazarian, December 2015
  - Racheal Cooper, May 2016
  - Marcella Torres, continuing

#### Grants Awarded

1. NSF grant for curriculum coordination with STEM departments “Collaborative Research: A National Consortium for Synergistic Undergraduate Mathematics via Multi-institutional Interdisciplinary Teaching Partnerships (SUMMIT-P)”. PI for VCU component (total budget, VCU budget \$333,268)
1. VCU CTE Grant 2012 “Implementation of Skills Support in Lon-CAPA for Math 141: College Algebra”: \$5000
2. University of Bristol Education Committee Learning and Teaching Award 2005 “Using Maple TA to provide Continuous Assessment in Multivariable Calculus”: £11,000

#### **SERVICE:**

##### Profession

- Organizer of IPAM workshop, WIMB (Women in Mathematical Biology), June 2019
- Organizer of MBI workshop, WAMB (Women Advancing Mathematical Biology), April 2017
- Member, AWM Nominating Committee, 2017
- Conference organizer, BAMM! (Biology and Medicine through Mathematics!) 2016 - 2019
- Jeffress Grant Reviewer, 2017- present
- Committee member AWM ADVANCE grant for network building 2016- present
- Chair, Membership Committee, Association for Women in Mathematics 2014-2016
- Elected to position of Clerk, Association for Women in Mathematics 2010-2014
- Editorial Board member of “Letters in Biomathematics”
- Reviewer for 12 journals
  - Medical & Biological Engineering & Computing
  - Journal of Theoretical Biology
  - Journal of Aerosol Science
  - Bulletin of Mathematical Biology
  - Inhalation Toxicology
  - Annals of Biomedical Engineering
  - Engineering Applications of Computational Fluid Mechanics
  - Journal of Biomechanics
  - Respiratory Physiology & Neurobiology
  - Mathematical Medicine and Biology
  - Journal of Biological Dynamics
  - Letters in Biomathematics
- Minisymposium/Special Session Organizer
  - “How to Heal? Models of Injury, Illness, and Treatment”, with Lisette DiPillis,

### SMB 2016

- WhAM! Reunion Tour, update on research workshop, SMB meeting 2015
- Survey of mathematical modeling techniques for wound healing, SMB meeting, 2012
- Special Session on Advances in Mathematical Biology, JMM, 2012
- Opportunities for Leadership, SMB meeting, 2009
- Dispersal Phenomena in Ecology, SMB meeting, 2009
- Recent Advances in Mathematical Modeling in Medicine, JMM, 2009
- Moody's Mega Math Challenge Judge, 2016, 2017
- Judge for AWM Essay Contest, 2010, 2013, 2015, 2016
- Mentor at SMB meeting, 2009, 2016
- Mentor at the AWM Joint Mathematics Meeting workshop, Washington, DC 2009
- Session Chair (Fluids 8) at British Applied Mathematics Colloquium, Bristol 2007

### University

- UWE exchange program for math and stats majors – worked to set-up an exchange program with the mathematics department at University of West of England to strengthen VCU's connection with this international campus partner.
  - Hosted 3 students from UWE in 2010-2011
  - Hosted 3 students from UWE in 2012-2013
  - Hosted 2 students from UWE in 2013-2014
  - Hosted 1 student from UWE 2014-2015
  - Hosted 1 student from UWE 2017-2018
- Judge for VCU Education Abroad Scholarship Competition (2011-2013, 2015-2016)
- Discovery Lecture Series (2008) – participated on panel for undecided majors.
- Undeclared fair (2013)

### College

- Graduate Academic Committee (2017-)
- HAS Library committee (2006-2014)
- Science Day (2008) – initiated and organized department participation in event for incoming freshmen during orientation week

### Department

- Graduate Program Director (2017 – present)
- Ex officio member of Executive Committee (2017-present)
- Member, Executive Committee (2013-2016) – steering committee for the department
- Chair, Math 141 (2011-present) – faculty coordinator for Math 141. This course has annual enrollment over 1500 students, with approximately 25 different instructors/adjuncts
- Department Tea (2008-2015) – established and administer department tea
- Biomath Seminar (2008-2013) – established and administer research seminar series in Biomath
- Chair, Biomath committee (2011-2014) – planning and implementation of new undergraduate Biomath track, includes development of new course; discussed mission, goals, organization, design of new PhD track in Biomath.
- Assessment Committee (2011-present) – drafted new mission, goals, objectives for the department
- Women in Math (2009-present) – submitted grants with Norma Ortiz-Robinson to Google

for summer program for female junior high school students (not funded) and to AWM for SK Day outreach program (funded)

- Student Activities Committee (2009-2015) – organized welcome back event for math majors
- Credential Committee (2006-2008) – choose undergraduate department award recipients

#### Community

- PTA Corresponding Secretary, Fox Elementary School (2017-present)
- STEAM-ON sessions at MSIC program for middle school girls (2017)
- President of Parent Advisory Council, VCU Child Development Center (2012-2014)
- Treasurer of Parent Advisory Council, VCU Child Development Center (2016 - 2017)
- Science Fair Project Mentor for High School Students (2011-2012, 2016)
- Summer Research Mentor for High School Students (2011,2012)
- Biomath Lab for visiting Junior and Seniors from Armstrong HS (2012)
- GCTRM event at Math Science Center (2013)
- Sonya Kovalevsky Day for Middle School students (2013) (2016)
- STEM session at Baker Elementary School (talk x2 groups) (2014)
- Girls Scout STEM day (hands-on session x4 groups) (2014)