

James Baglama

Curriculum Vitæ

Department of Mathematics and Applied Mathematical Sciences
University of Rhode Island
Kingston, RI 02881

EDUCATION

Ph.D. Applied Mathematics, 1997, Kent State University, Kent, OH.
Advisors: Professors Lothar Reichel (Math) and Arden Ruttan (Comp. Sci.).
Krylov Subspace Methods with Application to Liquid Crystal Modeling.

M.S. Mathematics, 1991, Youngstown State University, Youngstown, OH.
Advisor: Professor John J. Buoni.

B.S. Mathematics, 1990, Youngstown State University, Youngstown, OH.
Advisor: Professor J. Douglas Faires.

EXPERIENCE

Full Professor July 2013 - Present.
Department of Mathematics and Applied Mathematical Sciences
University of Rhode Island, Kingston, RI.

Chair July 2014 - June 2023.
Department of Mathematics and Applied Mathematical Sciences
University of Rhode Island, Kingston, RI.

Interim Chair July 2012 – July 2013.
Department of Mathematics, University of Rhode Island, Kingston, RI.

Associate Professor July 2007 – July 2013.
Department of Mathematics, University of Rhode Island, Kingston, RI.

Assistant Professor July 2002 – July 2007.
Department of Mathematics, University of Rhode Island, Kingston, RI.

Assistant/Associate Professor August 1999 – July 2002.
(Promoted to Associate Professor, July 2002).
Department of Mathematical Sciences, Ball State University, Muncie, IN.

Visiting Assistant Professor August 1997 – July 1999.
Department of Mathematics, Texas Tech University, Lubbock, TX.

RESEARCH AREAS

Mathematical Algorithms, Mathematical Biology, Numerical Analysis, Numerical Linear Algebra, Scientific Computing, Data Science, Big Data

SOFTWARE SKILLS

FORTRAN, MATLAB, Octave, Python, R, LaTeX

MAJOR PROFESSOR

1. Daniel Richmond (2010–2014). Dan was awarded a SMART fellowship 2013–2014. Thesis Title: *Implicitly Restarted Krylov Subspace Methods for Large-Scale Least-Squares Problems*.
2. Jennifer Picucci (2017–2021). Thesis Title *Iterative Methods for Computing a Few Eigenpairs or Singular Triplets of Large Sparse Matrices*.
3. Kyle Monette (2024 - 2027) Co-advisor: Vasilije Perovic.

ADVISING

1. Undergraduate Student advisor. Official advisor for 6–12 undergraduate students each year for the last 4 years (currently advising 12 undergraduates).
2. Graduate thesis committee member for: Chi Shen (2006), Andrew Whitford (2006), Pankaj Ahire(2010), Scott Johnson(2011), David Brown (2012), Deb Matthews (2017), Jenna Reis (2015), Joshua Liberty (2014), Angela Frolov (2014), David Perrone (2024).

JOURNAL PUBLICATIONS (peer reviewed)

[Journal Ranks] (2023) – [Scimago](#). Citation numbers – [Google Scholar](#)

1. J. Baglama, D. Calvetti, and L. Reichel, *Iterative Methods for the Computation of a Few Eigenvalues of a Large Symmetric Matrix*, BIT Numerical Mathematics[Q1], 36 (1996), pp. 400–421.
2. J. Baglama, D. Calvetti, L. Reichel, and A. Ruttan, *Computation of a Few Small Eigenvalues of a Large Matrix with Application to Liquid Crystal Modeling*, Journal of Computational Physics[Q1], 146 (1998), pp. 203–226.
3. J. Baglama, D. Calvetti and L. Reichel, *Fast Leja point*, ETNA[Q2], 7 (1998), pp. 126–140.
4. J. Baglama, D. Calvetti, G.H. Golub, and L. Reichel, *Adaptively Preconditioned GMRES Algorithms*, SIAM Journal of Scientific Computing[Q1], 20 No. 1 (1998), pp. 243–269.
5. S. R.-J. Jang and J. Baglama, *Qualitative behavior of a variable-yield simple food chain with an inhibiting nutrient*, Mathematical Biosciences[Q2], 164 (2000), pp. 65–80.
6. E. J. Allen, J. Baglama, and S. K. Boyd, *Numerical Approximation of the Product of the Square Root of Matrix with a Vector*, Linear Algebra and its Applications[Q1/Q2], 310 (2000), pp. 167–181.
7. J. Baglama, *Dealing With Linear Dependence during the Iterations of the Restarted Block Lanczos Methods*, Numerical Algorithms[Q2], 25 (2000), pp. 23–36.
8. S. R.-J. Jang and J. Baglama, *A Nutrient-Prey-Predator Model with Intraspecific Predation*, Applied Mathematics and Computation[Q1], 129 (2002), pp. 517–536.
9. J. Baglama, D. Calvetti and L. Reichel, *Algorithm 827: irbleigs: A MATLAB Program for Computing a Few Eigenpairs of a Large Sparse Hermitian Matrix*, ACM Transactions on Mathematical Software[Q1/Q2], 29 No. 5 (2003), pp. 337–348.

10. J. Baglama, D. Calvetti and L. Reichel, *IRBL: An Implicitly Restarted Block Lanczos Method for Large-Scale Hermitian Eigenproblem*, SIAM Journal of Scientific Computing[Q1], 24 No. 5 (2003), pp. 1650–1677.
11. S. R.-J. Jang and J. Baglama, *Persistence in variable-yield nutrient-plankton models*, Mathematical and Computer Modelling[Q2], 38 (2003), pp. 281–298.
12. S. R.-J. Jang, J. Baglama, and P. Seshaiyer, *Intratrophic Predation in a Simple Food Chain with Fluctuating Nutrient*, Discrete and Continuous Dynamical Systems-Series B[Q2], 5 No. 2 (2005), pp. 335–352.
13. S. R.-J. Jang and J. Baglama, *Nutrient-plankton models with nutrient recycling*, Computers and Mathematics with Application[Q1], 49 (2005), pp. 375–387.
14. J. Baglama and L. Reichel, *Augmented Implicitly Restarted Lanczos Bidiagonalization Method*, SIAM Journal of Scientific Computing[Q1], 27 No. 1 (2005), pp. 19–42.
15. S. R.-J. Jang and J. Baglama, *Droop models of nutrient-plankton interaction with intratrophic predation*, Applied Mathematics and Computation[Q1], 169 (2005), pp. 1106–1128.
16. S. R.-J. Jang, J. Baglama and J. Rick, *Nutrient-phytoplankton-zooplankton models with a toxin*, Mathematical and Computer Modelling[Q2], 43 Issues 1-2 (2006), pp. 105–118.
17. J. Baglama and L. Reichel, *Restarted Block Lanczos Bidiagonalization Methods*, Numerical Algorithms[Q2], 43 (2006), pp. 251–272.
18. J. Baglama and L. Reichel, *Decomposition methods for large linear discrete ill-posed problems*, Journal of Computation and Applied Mathematics[Q2], 18 (2007), pp. 332–343.
19. J. Baglama and L. Reichel, *Augmented GMRES-type methods*, Numerical Linear Algebra with Application[Q1], 14 (2007), pp. 337–350.
20. J. Baglama, *Augmented Block Householder Arnoldi Method*, Linear Algebra and its Applications[Q1/Q2], Vol. 429, Issue 10, (2008), pp. 2315–2334.
21. S. R.-J. Jang, J. Baglama, and J. Rick, *Plankton-toxin interaction with a variable input nutrient*, Journal of Biological Dynamics[Q2], Vol. 2, Issue 2, (2008), pp. 14–30.
22. S. R.-J. Jang and J. Baglama, *Continuous-time predator-prey models with parasites*, Journal of Biological Dynamics[Q2], Vol. 3, (2009) pp. 87–89.
23. S. R.-J. Jang, J. Baglama, and L. Wu, *Random dispersal in a predator-prey-parasite system*, World Scientific Journal of Biological Systems[Q2], Vol. 18 No. 4 (2010) pp. 825–845.
24. J. Baglama, L. Reichel, and D. Richmond, *An Augmented LSQR Method*, Numerical Algorithms[Q2], Volume 64, Issue 2 (2013), pp. 263 – 293.
25. J. Baglama and L. Reichel, *An Implicitly Restarted Block Lanczos Bidiagonalization Method Using Leja Shifts*, BIT Numerical Mathematics[Q1], Volume 53, Issue 2 (2013), pp. 285–310.
26. S. R. Jang, J. Baglama, and L. Wu, *Dynamics of phytoplankton-zooplankton systems with toxin producing phytoplankton*, Applied Mathematics and Computation[Q1], Vol. 227, (2014), pp. 717–740.
27. J. Baglama and D. Richmond, *Implicitly Restarting the LSQR Algorithm*, ETNA[Q2], Vol. 42, (2014), pp. 85–105.

28. J. Baglama, C. Fenu, L. Reichel, and G. Rodriguez, *Analysis of directed networks via partial singular value decomposition and Gauss quadrature*, Linear Algebra and its Applications[Q1/Q2], Vol. 456, (2014), pp. 93–121.
29. M. Jandron, A. Ruffa, and J. Baglama *An Asynchronous Direct Solver for Banded Linear Systems* Numerical Algorithms[Q2], Vol. 76, Issue 1, (2017) pp. 211–235.
30. J. Baglama, T. Bella, and J. Picucci *Hybrid Iterative Refined Method for Computing a Few Extreme Eigenpairs of a Symmetric Matrix* SIAM Journal of Scientific Computing[Q1], 43, 5 (2021) pp.S200–S224.
31. J. Baglama, V. Perovic, and J. Picucci *Hybrid Iterative Refined Restarted Lanczos Bidiagonalization Methods*, Numerical Algorithms[Q2], Vol. 92, (2023) pp. 1183–1212.
32. J. Baglama and V. Perovic, *Explicit Deflation in Golub–Kahan–Lanczos Bidiagonalization Methods*, ETNA[Q2], Vol. 58, (2023), pp. 164–176.
33. J. Baglama, V. Perovic, and T. Toolan, *Note on a Rank-one Modification of the Singular Value Decomposition*, Applied Mathematics and Computation[Q1], Vol. 457, 15 Nov. (2023).
34. J. Baglama, J. Chavez-Casillas and V. Perovic *A Hybrid Algorithm for Computing a Partial Singular Value Decomposition Satisfying a Given Threshold*, Numerical Algorithms[Q2] accepted on July 25, 2024 and published on August 6, 2024. DOI 10.1007/s11075-024-01906-9

BOOK CHAPTERS

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1. S. R.-J. Jang and J. Baglama, *Nutrient-Plankton Interaction with a Toxin in a Variable Input Nutrient Environment*, Current Development in Mathematical Biology, Proceedings of the Conference on Mathematical Biology and Dynamical Systems, Series on Knots and Everything, (2007), ISBN 981-270-015-3.
 2. J. Baglama, *Creating a First Online Course in the Mathematics Department*, Chapter in the Book: Taking your class online: A multidisciplinary journey, Information Age Publishing, (2012), ISBN:161-735-593-3.
 3. J. Baglama, *IRLBA: Fast Partial Singular Value Decomposition Method*, Chapter in the Book: Handbook of Big Data, Taylor & Francis, (2016), ISBN: 148-224-907-3.

ARTICLES (not peer reviewed)

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1. J. Baglama, M. Kane, B. Lewis, and A. Poliakov, *Efficient thresholded correlation using truncated singular value decomposition* arXiv preprint (2015).
 2. J. Baglama, *Pizza Pi* Short Article under Life Hacks in the QuadAngles Winter 2017 Volume 25, No.2 issue page 13.
 3. J. Baglama [aut, cph], B. Lewis[aut, cre, cph] , and L. Reichel[aut, cph] *irlba: Fast truncated singular value decomposition and principal components analysis for large dense and sparse matrices* (2017).
 4. J. Baglama [aut, cph], B. Lewis[aut, cre, cph] , and L. Reichel[aut, cph] *Package 'irlba'* (2019).

1. JAVA program for Fast Leja Points (845 lines of code) (1998) - requires JAVA plugin. The program is available on the journal website for Electronic Transaction for Numerical Analysis (ETNA), <http://etna.mcs.kent.edu/>, <https://etna.math.kent.edu/volumes/1993-2000/vol7/addition/leja.php>
2. MATLAB: `irbleigs.m` (1518 lines of code) (2002).
The code computes solutions of large eigenvalue problems. Code is also on ACM TOMS' website <http://toms.acm.org/> (keyword search Baglama).
3. MATLAB: `irblsvds.m` (311 lines of code) (2002).
The code computes solutions of large eigenvalue problems.
4. MATLAB: `irlba.m` (655 lines of code) (2004).
The code computes a few singular triplets. Code is also on Netlib's website, <http://www.netlib.org> (keyword search Baglama). There are translations of my code into other languages, e.g. R version written by Bryan Lewis can be found at <https://cran.r-project.org/web/packages/irlba/>.
5. MATLAB: `ahbeigs.m` (683 lines of code) (2005).
The code computes solutions of large eigenvalue problems. Code is also on Mathwork's MATLAB Central website <http://www.mathworks.com/matlabcentral>.
6. MATLAB: `irlbablk.m` (752 lines of code) (2006).
The code computes a few singular triplets and is an extension of `irlba.m` to a block method. Code is also on Netlib's website, <http://www.netlib.org> (keyword search Baglama).
7. MATLAB: `irblb.m` (1591 lines of code) (2011).
The code computes a few singular triplets. This code uses Leja points.
8. MATLAB: `alsqr.m` (675 lines of code) (2012).
The code computes the solution to least squares problems.
9. MATLAB: `irlsqr.m` (538 lines of code) (2013).
The code computes the solution to least squares problems.
10. MATLAB: `trreigs.m` (775 lines of code) (2020).
The code computes solutions of large eigenvalue problems.
11. MATLAB: `trrsvds.m` (1246 lines of code) (2021).
The code computes a few singular triplets for large matrices.
12. MATLAB: `rd2svds.m` (193 lines of code) (2021).
The code computes a few singular triplets for large matrices.
13. MATLAB: `driver-trrsvds-rd2svds.m` (2021).
Driver program for `trrsvds.m` and `rd2svds.m`.
14. MATLAB: `svt_svds.m` (553 lines of code) (2024).
The code computes all singular values above a given threshold.
15. Octave: `svt_irlba.m` (927 lines of code) (2024).
The code computes all singular values above a given threshold.
16. R: `svt_irlba.m` (612 lines of code) (2024).
The code computes all singular values above a given threshold.

INVITED PRESENTATIONS

1. Math Department Colloquium, Texas Tech University, Lubbock, TX, November 13, 1997. *Krylov Subspace Methods with Application to Liquid Crystal Modeling.*
2. Math Department Colloquium, Youngstown State University, Youngstown, OH, March 17, 1998. *Liquid Crystal Modeling and Krylov Subspace Methods.*
3. Math Department Colloquium, University of Dallas, Irving TX, October 9, 1998. *Krylov Subspace Methods: How to Solve Large Scale Eigenvalue Problems.*
4. Math Department Colloquium, Indiana University- Purdue University, Fort Wayne, IN, November 18, 1999. *Krylov Subspace Methods: How to Solve Large Scale Eigenvalue Problems.*
5. Colloquium Talk Math Department, Kent State University, Kent OH, May 7, 2001. *Finding a Few Eigenvalues of a Sparse Symmetric Matrix.*
6. Math Department Colloquium, Case Western Reserve University, Cleveland, OH, April 8, 2002. *Computing Eigenvalues of Large Sparse Symmetric Matrices.*
7. Math Department Colloquium, University of Rhode Island, Kingston, RI, April 18, 2003. *Computing a few Singular Values of a Large Sparse Rectangular Matrix.*
8. Math Department Colloquium, University of Massachusetts at Dartmouth, North Dartmouth MA, October 14, 2004. *Computing a Partial Singular Value Decomposition with Augmented Krylov.*
9. Math Department Colloquium, Tufts University, Medford, MA, December 10, 2009. *Using Augmented Krylov Subspaces to Solve Large Scale SVD and Eigenvalue Problems.*
10. New England Numerical Analysis Day 2010, Worcester Polytechnic Institute, Worcester, MA, May 8, 2010. *Fast SVD Algorithm for Solving Large Scale SVD Problems.*
11. Online Teaching and Learning Workshop, University of Rhode Island, Kingston, RI, October 1, 2010. *Sakai Show and Tell: Discussion Boards and Teaching Math.*
12. Academic Summit, University of Rhode Island, Kingston, RI, January 18, 2011. *Teaching Math Online and Discussion Forums.*
13. New England Numerical Analysis Day 2011, University of Massachusetts at Dartmouth, North Dartmouth MA, April 14, 2011. *IRBLB: Implicitly Restarted Block Lanczos Bidiagonalization Method with Leja Shifts.*
14. AMGEN Seminar Series in Chemical Engineering, University of Rhode Island, Kingston, RI, February 16, 2012. *Methods for Computing a Partial Singular Value Decomposition of a Very Large Matrix.*
15. CSE13 Minisymposium, Creating a dynamic undergraduate research environment in scientific computing, 2013 SIAM Conference on Computational Science and Engineering, Boston, MA, February 25- March 1, 2013. *Scientific Computing Projects for Undergraduates.*
16. Biostatistics Seminar, Yale University, New Haven CT, February 13, 2018. *Fast Partial Singular Value Decomposition (PSVD) Methods.*

CONFERENCE
PRESENTA-
TIONS

1. Copper Mountain Conference on Iterative Methods, Copper Mountain, CO, April 9–13, 1996. *A Numerical Method for Eigenvalue Problems in Modeling Liquid Crystals.*
2. Workshop on the Use of Iterative Methods for Large-Scale Eigenvalue Problems, Argonne National Laboratory, Argonne, IL, May 14–16, 1997. *An Iterative Block Method for Computing a Few Close Eigenvalues of a Large Sparse Symmetric Matrix*
3. NSF Science and Technology Center renewal site visit, ALCOM, Kent State University, Kent, OH, June 25–27, 1997. *Tracking Equilibrium Configuration of Liquid Crystals.*
4. Sixth SIAM Conference on Applied Linear Algebra, Snowbird, UT, October 29–November 1, 1997. *A Block Method for Computing a Few Close Eigenvalues of a Large Sparse Symmetric Matrix that Arises in Liquid Crystal Modeling.*
5. Texas NExT Meeting, Exxon Conference Center, Dallas, TX, October 16–18, 1998. *Web pages in Linear Algebra.*
6. Fourth IMACS International Symposium on Iterative methods in Scientific Computation, University of Texas, Austin, TX, October 18–20, 1998. *The use of Krylov Subspaces in Continuation Methods.*
7. SIAM Fall MiniSymposium at Texas Tech University, Lubbock, TX, October 24, 1998. *The use of Krylov Subspaces in Continuation Methods.*
8. AMS–MAA Joint Mathematics Meetings, San Antonio, TX, January 13–16, 1999. *The use of Numerical Techniques to Solve a Liquid Crystal Modeling Problem.*
9. Mathematical Journey through Analysis, Matrix Theory and Scientific Computation, Kent State University, Kent, OH, March 24–27, 1999. *Solving Large Scale Eigenvalue Problems.*
10. AMS–MAA Joint Mathematics Meetings, Washington D.C., January 19–22, 2000. *Numerical Approximation of the Product of the Square Root of a Matrix With a Vector.*
11. The Second Ball State University Conference on the Scholarship of Teaching and Learning, Ball State University, Muncie, IN, March 18, 2000. *Interactive Web Site of Questions and Answers.*
12. Meeting on Large-Scale Computations in the Simulation of Materials, Carnegie Mellon University, Pittsburgh, PA, March 30–April 1, 2000. *Numerical Solution of the Landau-de Gennes Minimization Problem for Liquid Crystals in Rectangular Regions.*
13. Focus on Excellence, Ball State University, Muncie, IN, November 15, 2000. *Krylov Subspaces and Continuation Methods.*
14. AMS-MAA Joint Mathematics Meetings, New Orleans, LA, January 10–13, 2001. *Finding a Few Interior Eigenvalues of a Large Symmetric Matrix Without Factorization.*
15. ETNA: Following the flows of Numerical Analysis, Kent State University, Kent, OH, May 29–31, 2003. *A MATLAB code (irbleigs) for finding few eigenvalues of a large sparse Hermitian matrix.*
16. Northeastern Section of the MAA (NES/MAA) Fall 2003 Meeting, Wellesley College, Wellesley, MA, November 21–22, 2003. *Using a Partial Singular Value Decomposition to Approximate a Large Sparse Rectangular Matrix.*

17. 8th Copper Mountain Conference on Iterative Methods, Copper Mountain, CO, March 28–April 2, 2004. *Solving Eigenvalue and SVD Problems with Augmented Krylov Subspaces*.
18. 2004 SIAM Annual Meeting, Portland, OR, July 12–16, 2004. *Solving Eigenvalue and SVD Problems with Augmented Krylov Subspaces*.
19. 2005 SIAM Annual Meeting, New Orleans, LA, July 11–15, 2005. *Augmented GMRES-Type Methods*.
20. 2006 SIAM Annual Meeting, Boston MA, July 10–14, 2006. *Block Krylov Subspace Methods for Eigenvalue and SVD Problems*.
21. Gene Golub Memorial Conference, University of Massachusetts Dartmouth, MA, February 28–March 1, 2008. *Block Krylov Subspace Methods for Solving Large Sparse SVD and Eigenvalue Problems*.
22. AMS Joint Mathematics Meeting, Boston, MA, January 4–7, 2012. *Teaching a General Education Math Course Online with Discussion boards and a Screencast system*.
23. URI Technology Symposium, University of Rhode Island, RI March 20, 2013. *Online General Education Math Course*.
24. New Frontiers in Numerical Analysis and Scientific Computing. 20th Anniversary of ETNA, Kent State University, Kent, OH, April 13, 2013. *Augmented LSQR Method*.
25. International Linear Algebra Society (ILAS), Providence RI, June 3–7, 2013. *Restarted Block Lanczos Bidiagonalization Algorithm for Finding Singular Triplets*.
26. Scientific Computing with Python, SciPy 2013, Austin, Texas June 24–29, 2013. Poster Presentation: *IRLB, a fast partial SVD*. (I was not at the conference. I worked on the poster.)
27. **(CANCELED - COVID-19)** 16th Copper Mountain Conference on Iterative Methods, Copper Mountain, CO, March 21–March 26, 2020. *Hybrid Iterative Refined Methods for Symmetric Eigenvalue Problems*. Speaker: Jennifer Picucci (Ph.D. graduate student).
28. Hybrid: SIAM Annual Meeting, Pittsburg, PA, July 11–15, 2022. *Hybrid Iterative Refined Restarted Lanczos Methods*.
29. AMS Joint Mathematics Meeting, Boston, MA, January 4–7, 2023. *Fast Computer Code for Computing a Few of the Largest Singular Triplets of a Large Sparse Matrix*
30. Numerical Analysis in the 21st Century, Blavatnik School of Government and Balliol College, Oxford, UK, August 14–17, 2023. *Golub–Kahan–Lanczos Bidiagonalization (GKLB) Methods for Computing Singular Triplets for Very Large Sparse Matrices and Applications*

OTHER PRESENTATIONS

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1. *What is L^AT_EX Workshop*, Math Department one day workshop meeting at URI, March 31, 2010.
 2. *Face Recognition Using Eigenfaces* Pi Mu Epsilon Induction Ceremony Meeting at URI on April 14, 2010.

3. *G2C at URI: A case Study in Gateway Course Reform to Support Student Success*, group presentation at Gateways to Completion Community of Practice meeting in Charlotte, NC on April 15 - 19, 2015. Fell ill during meeting, forced to leave early.
4. *Department of Mathematics University of Rhode Island AAUP Salary Adjustment Request 2018* URI-AAUP & Administration negotiation meeting at URI on April 24, 2018.
5. *Few Highlights of Initiatives to Improve Student Success in Math Classes at the University of Rhode Island* College Readiness Meeting at URI on August 23, 2019.
6. *Highlights of Initiatives to Improve Student Success in URI Math Classes* Council of Deans meeting at URI on September 4, 2019.

GRANTS

1. NSF Grant DMS-0311786 \$65,000 (2003–2005). *Implicitly Restarted Block Arnoldi (IRBA) Method*.
2. URI Development Grant \$5,200 (2004). *Numerical Methods for Ill-Posed Problems*.
3. URI Development Grant \$1,000 (2006). *Eigenfaces*.
4. URI Foundation \$3,000 (2008–2011). *URI Calc-Bowl*.
5. URI Foundation \$1,500 (2009). *New England Numerical Analysis Day*.
6. URI Visiting Scholar \$500 (2009). Bring Lothar Reichel to URI to speak at Numerical Analysis Day.
7. SIAM CCRI-URI Student Chapter grant \$500.00 each year (2010 and 2011, 2017). Funding used to bring in speakers for applied math seminar.
8. URI Foundation \$3,470 (2011–2013). *Online General Education Math Courses*.
9. URI Gateway \$13,900 (2012–2013). *Math 141: Mathematica*.
10. URI CEMS \$8,000 (2013–2014). *Modify Math Gateway Courses*.
11. URI Faculty Career Enhancement Grant \$4,000 (2023–2024) *Methods for Computing Correlation and Singular Value Thresholds*.

OUTREACH

1. Pi Mu Epsilon Integration Bee, University of Rhode Island, April 2006. Organized a contest for URI advanced calculus students.
2. Partnership with Cranston East on NECAP (2013). In 2013, with Jessica Libertini, Cornelis de Groot and math graduate students, and the administration staff at Cranston East High School, we developed and administered a three-day summer program to aid about 60 high school students in preparing for the New England Common Assessment Program (NECAP) exam. The event was profiled on the URI press release page.
3. URI Calc-Bowl (2007–2019). Co-Organize the Calc-Bowl with Tom Bella, Vasilije Perovic, Lubos Thoma, and Li Wu. URI Calc-Bowl was an annual regional mathematics competition designed for college and high school students who are taking or have taken Calculus courses.

**CONFERENCE
AND MINISYM-
POSIUM
ORGANIZER**

1. Co-Organized the conference, First New England Numerical Analysis Day, University of Rhode Island Kingston, RI, April 4, 2009.
2. Applied Math Seminar Organizer, Mathematics Department, University of Rhode Island. (2009–Present).
3. Co-Organizing the minisymposium, Krylov subspace methods for linear systems, 2013 ILAS meeting, Providence RI, June 3–7, 2013.

**COMMITTEES/
SERVICE**

1. Pi Mu Epsilon (National Honor Society in Math) Advisor (2002–2012).
2. Math Department Policy and Topics committee (2002–2006).
3. Member of Faculty Senate (2003–2006).
4. Adventures in Teaching Conference (2004).
5. General Education Program committee (2004).
6. Learning Outcomes Seminars (2005, 2006).
7. Math Technology Committee (2008–2012).
8. Online Faculty Fellows Program (2009).
9. MTH 141 Calculus I Course Coordinator (2009–2012).
10. Math Graduate Program Committee (2009–2010).
11. Society for Industrial and Applied Mathematics (SIAM) CCRI-URI Chapter Co-Advisor (2009–2012).
12. Math Undergraduate Program Committee (2010–2012). Chair of Undergraduate Programs Committee (2012).
13. Online Teaching and Distance Learning Task Force (2010).
14. Sakai Consultant and Mathematica Representative for the Math Department (2010–2012).
15. Faculty Mentor for Online Teaching Fellows Program (2011).
16. STEM Coordinators Committee (2011–2012).
17. Math Undergraduate Program Committee (2012–2016). Chair (2013).
18. MTH 111 PreCalculus Course Coordinator (2013–2015).
19. Member of the MSC Task Force for General Education (2013–2014).
20. Lippitt Hall building manager (2013–2023).
21. Gateway to Completions (G2C) steering committee (2013–2018). Participated in the departmental committee and University-wide steering committee.
22. Lecturer Search Committee, 2010 (chair), 2012, 2013, 2014 (chair), 2018 (chair), 2019 (chair), and 2021(chair).
23. Dean’s Advisory Committee (2015–2016).
24. PARCC Performance Level Conference Algebra I Committee (2015). Invited to participate by Commissioner, Jim Purcell to be on the Algebra I assessment committee.
25. Chair of Departmental Academic Program Review Committee (2015–2016). Responsibilities include six year self-study, external review, action plan, and meeting with Provost/Dean to discuss study and action plan.

26. Complete College America co-requisite remediation task force (2015–2018). Participated in the initial proposal and was on the state-wide task force.
27. General education B3 Mathematical, Statistical, or Computational Strategies committee (2015–2016). Approved proposals for the new general education program that satisfy B3.
28. Chair of Math Tenure-Track Search Committee (2010, 2016, 2017, and 2021).
29. Chair of search committee for Chair of Economics (Fall 2014).
30. Member of search committee for Chair of Chemistry (Fall 2016).
31. Member of Big Data Collaborative at URI (2016 – 2017).
32. URI Academic Summit Planning Committee (2016–2017). One day summit on January 19, 2017. *Academic Challenges for Higher Education in the 21st Century*.
33. Faculty Senate General Education Committee (2016–2018). Approve proposals for all areas in the new general education program.
34. Faculty Senate Curriculum Affairs Committee (2016–2018). Approve proposals for all curriculum areas.
35. Member of search committee for Lecturer in Statistics (Summer 2017).
36. External Reviewer of Mathematics Program at UMass Dartmouth (2017).
37. A&S Graduate TA Allocation Committee (2019).
38. Faculty Senate Special ABM Review Committee (2018–2019). Worked on guidelines for the Accelerated Bachelors to Masters. Final report submitted in February 2019 and presented at Faculty Senate meeting February 21, 2019.
39. Faculty Senate Special Committee on Minors (Fall 2019). Worked on changing the language/requirements for minors. Changes were approved by Faculty senate October 17, 2019 and are now included in the manual.
40. Faculty Senate Special Committee for Curricular Committee Structure Refinement (2020). Worked on structure on the faculty senate committees. Recommendation for changes submitted to faculty senate Fall 2020.
41. Create a proposal to officially change the department name from the Department of Mathematics to Department of Mathematics and Applied Mathematical Sciences (Fall 2020). Name change officially approved Spring 2021.
42. Member of ad hoc committee in A&S to create an MOU between Computer Science, Statistics, and Mathematics.(2021). MOU signed by Dean Riley of A&S on May 21, 2021.
43. Member of Data Science Executive Committee (2021–2023).
44. Chair of Departmental Academic Program Review Committee (2021–2022). Responsibilities include six year self-study, external review, action plan, and meeting with Provost/Dean to discuss study and action plan.
45. Member of search committee for director of Data Science (Spring 2023).
46. Member (Invited by R.I. Commissioner) of Rhode Island’s State Team for the Dana Center Launch Years Initiative: Working Group. This group is dedicated to reimagining mathematics education and supports the scaling of mathematics pathways from high school through postsecondary education and into the workplace (2023–2026).
47. Member of Faculty Senate (2023-2026).
48. Member of the Constitution, By-Laws, and University Manual Committee (CBUM) (2023-2026).

49. Judge for the Association for Women in Mathematics (AWM) Graduate Student Poster Session at the AMS Joint Mathematics Meeting, Boston, MA, January 4–7, 2023.

AWARDS

1. 2014 URI Learning, Assessment, and Online Education Center. *Exemplary Online Course Design for MTH108: Topics in Mathematics*.
2. 2018 College of Arts & Sciences Administrative Excellence Award.

EDITORSHIP

1. Referee papers for journals (1999–Present). Journal of Applied Numerical Mathematics, Journal Computers and Mathematics with Applications, SIAM Journal on Scientific Computing, Applied Mathematics Letters, SIAM Journal on Matrix Analysis, BIT, TOMS, Journal of Numerical Math, Numerical Linear Algebra with Applications, and College Mathematics Journal.
2. Managing Editor for the journal Electronic Transactions on Numerical Analysis (ETNA) <http://etna.mcs.kent.edu> (2005–2014).

MEMBERSHIPS

1. Pi Mu Epsilon (1990–Present).
2. Society for Applied and Industrial Mathematics (SIAM) (2003–2007, 2021–2023).
3. Mathematical Association of America (MAA) (1996–2002, 2011–2013).

TEACHING & CURRICULUM DEVELOPMENT

1. Course taught at URI: MTH099 Basic Algebra, MTH107 Intro Finite Math, MTH108 Topics in Math (GE), MTH111 Precalculus (GE), MTH131 Applied Calculus I (GE), MTH132 Applied Calculus II, MTH141 Calculus I (GE), MTH142 Calculus II (GE), MTH180 Math Tools for Computing (GE), MTH215 Intro Linear Algebra, MTH243 Calculus of Function of Several Vars. (GE), MTH244 Differential Equations, MTH362 Advanced Eng Math I, MTH418 Matrix Analysis, MTH437 Adv. Calculus and Applications I, MTH438 Adv. Calculus and Applications II, MTH462 Function of Complex Var., MTH471 Intro Numerical Analysis I, MTH472 Numerical Linear Algebra, MTH513 Linear Algebra, and MTH571 Numerical Analysis.
2. Independent Studies at URI: MTH391 Special Problems, MTH492 Special Problems, AMS590 Advanced Topics in Applied Math, MTH591 Special Problems, MTH592 Special Problems, and MTH699 Doctoral Dissertation Research.
3. Developed URI Math Department's first online math course (2009) and won an award for the course.
4. Developed URI Math Department's first J-Term Winter (hybrid) course (2014). Taught J-term MTH 108 course in flipped (hybrid) classroom style from 2014–2020.
5. Created a track in Mathematical Statistics and Probability in the Ph.D. math program with other department faculty members (2021). Proposal submitted March 2021, approved both by Faculty Senate and Graduate Council (2022).