Elaine T. Spiller

EDUCATION BEYOND SECONDARY SCHOOL

University of Colorado; Boulder, CO	B.S. in Applied Mathematics	June 2000
Northwestern University; Evanston, IL	M.S. in Applied Mathematics	December 2001
Northwestern University; Evanston, IL	Ph.D. in Applied Mathematics	August 2005

APPOINTMENTS

Marquette University	Professor	2024 - present
Marquette University	Associate Professor	2015 - 2024
Marquette University	Assistant Chair	2015-2017
Marquette University	Assistant Professor	2008-2015
Statistical and Applied Mathematical Sciences Institute/Duke University	Postdoctoral Fellow	2006-2008
State University of New York at Buffalo	Visiting Asst. Prof.	2005-2006
Northwestern University	Teaching and Research Asst.	2001-2005

MEMBERSHIP IN PROFESSIONAL AND HONORARY SOCIETIES

American Statistical Association
International Association of Volcanology and Chemistry of the Earth's Interior
Society of Industrial and Applied Mathematics

OFFICES HELD IN PROFESSIONAL AND HONORARY SOCIETIES

Assistant Chair of SIAM Activity Group on Uncertainty Quantification	2017-2018
Assistant Chair of SIAM Activity Group on the Mathematics of Planet Earth	2025-2026

HONORS

– Way Klingler Fellowship, Marquette University	2022
– Way Klingler Sabbatical Fellowship, Marquette University	2018-2019
– Project NExT (New Experiences in Teaching) Fellow	2008-2009

SCHOLARLY PUBLICATIONS

A. Articles Under Review:

1. A. Gettemy, S. Minkoff, J. Zweck, E.T. Spiller. *Classification of Leading Edge Erosion Severity via Machine Learning Surrogate Models* **Wind Energy Science** 2025+

2. J. Seidman, E.T. Spiller. *VPPE: Application of Scaled Vecchia Approximations to Parallel Partial Emulation.* **SIAM/ASA J. Uncert. Quant**, https://doi.org/10.48550/arXiv.2508.19144, 2025+

3. E.T. Spiller, L.A. McGuire, P. Patel, E.B. Pitman, A.K. Patra. *Quantifying fire effects on debris flow runout using a morphodynamic model and stochastic surrogates.* **Natural Hazards and Earth System Sciences** https://essopenarchive.org/users/714422/articles/1258316, 2025+

B. Articles Published:

1. L. Sun, A. Apte, L. Slivinski, E.T. Spiller. *Exploring the Potential of Strongly Coupled Lagrangian Data Assimilation in an Ocean-Atmosphere System.* **Monthly Weather Review** 153(3) 425-445. doi=10.1175/MWR-D-23-0284.1, 2025.

2. T. Dolski, E.T. Spiller, S.E. Minkoff. *Gaussian process emulation for high-dimensional coupled systems.* **Technometrics** 66(3) 1–15. doi: 10.1080/00401706.2024.2322651, 2024.

3. P. Tierz, E.T. Spiller, B.A. Clarke, F. Dessalegn, Y. Bekele, E. Lewi, G. Yirgu, R.L. Wolpert, S.C. Loughlin, E.S. Calder. *Topographic controls on pyroclastic density current hazard at Aluto volcano (Ethiopia) as seen with a novel zero-censored Gaussian Process emulator.* **Journal of Geophysical Research**, 129(5) e2023JB028645 doi: 10.1029/2023JB028645, 2024.

4. E.T. Spiller, R.W. Wolpert, P. Tierz, and T.G. Asher. *The zero problem: Gaussian process emulators for range constrained computer models.* **SIAM/ASA J. Uncert. Quant**, 11(2) 540–566. doi: 10.1137/21M1467420, 2023.

5. J. Maclean, and E.T. Spiller. *A surrogate-based approach to nonlinear, non-Gaussian joint state-parameter data assimilation.* **Foundations of Data Science**, 3(3) 589–614. doi: 10.3934/fods.2021019, 2021.

6. P.K. Aikaterini, A.A. Taflanidis, M. Plumlee, T.G. Asher, E.T. Spiller, R.A. Luettich, B. Blanton, T.L. Kijewski-Correa, A. Kennedy, L. Shmied. *Improvements in storm surge surrogate modeling for synthetic storm parameterization, node condition classification and implementation to small size databases.* **Nat Hazards** (109), 1349–1386, doi=10.1007/s11069-021-04881-9, 2021.

7. E.T. Spiller, R.L. Wolpert, S.E. Ogburn, E.S. Calder, J.O. Berger, A.K. Patra, and E.B. Pitman. *Volcanic hazard assessment during an eruption hiatus, or post-eruption unrest context: Modeling continued dome collapse hazards for Soufrière Hills Volcano.* **Frontiers in Earth Science Geohazards and Georisks**, (8) 396 doi=10.3389/feart.2020.535567, 2020.

8. Q. Yang, E.B. Pitman, E.T. Spiller, M.I. Bursik, and A. Bevilacqua. *Novel statistical emulator construction for volcanic ash transport model Ash3d with physically-motivated measures*, **Proceedings of the Royal Academy A**, (476) 20200161. doi=10.1098/rspa.2020.0161, 2020.

9. R. Rutarindwa, E.T. Spiller, A. Bevilacqua, M.I. Bursik, and A.K. Patra. *Dynamic probabilistic hazard mapping in the Long Valley Volcanic Region CA: integrating vent opening maps and statistical surrogates of physical models of pyroclastic density currents.* **Journal of Geophysical Research: solid earth**, (124) doi=10.1029/2019JB017352, 2019.

10. R.L. Wolpert, E.T. Spiller, E.S. Calder. *Dynamic Statistical Models for Pyroclastic Density Current Generation at Soufriere Hills Volcano.* **Frontiers in Earth Science** (6) doi=10.3389/feart.2018.00055, 2018.

11. S.E. Ogburn, J.O. Berger, E.S. Calder, D. Lopes, A. Patra, E.B. Pitman, R. Rutarindwa, E.T. Spiller, and R.L. Wolpert. *Pooling strength amongst limited datasets using hierarchical Bayesian analysis, with application to pyroclastic density current mobility metrics.* **Statistics in Volcanology** (2), 1–26, 2016.

12. M.J. Bayarri, J.O. Berger, E.S. Calder, E.T. Spiller, A.K. Patra, E.B. Pitman, and R.L. Wolpert. *Probabilistic Quantification of Hazards: a method for using small ensembles of physics-based simulations and statistical surrogates..* **Int. J. for Uncert. Quant**. 5(4), 297–325, 2015.

13. L. Slivinski, E.T. Spiller, A. Apte, and B. Sandstede. *A Hybrid Particle-Ensemble Kalman Filter for Lagrangian Data Assimilation.* **Monthly Weather Review** 143(1), 195–211, 2015.

14. N. Santitissadeekorn, E.T. Spiller, C.K.R.T. Jones, R. Rutarindwa, L. Liu, and K. Ide. *Observing System Simulation Experiments of Cross-Layer Lagrangian Data Assimilation*, **Dynamics of Atmospheres and Oceans**, (66), 77–93, 2014.

15. E.T. Spiller, M.J. Bayarri, J.O. Berger, E.S. Calder, A.K. Patra, E.B. Pitman, and R.L. Wolpert. *Automating Emulator Construction for Geophysical Hazard Maps.* **SIAM/ASA J. Uncert. Quant** (2), 126–152, 2014.

16. E.T. Spiller, A. Apte and C.K.R.T. Jones. *Assimilating en Route Lagrangian Observations*. **Tellus A**, (65), 20319, 2013.

17. E.T. Spiller, and G. Biondini. *Importance Sampling for Dispersion-Managed Solitons*. **SIAM J. Appl. Dyn. Syst.** 9, 432–461, 2010.

18. M.J. Bayarri, J.O. Berger, E.S. Calder, K. Dalbey, S. Lunagomez, A.K. Patra, E.B. Pitman, E.T. Spiller and R.L. Wolpert. *Using Statistical and Computer Models to Quantify Volcanic Hazards*. **Technometrics** 51 (4), 402–413, 2009.

19. E.T. Spiller, and G. Biondini. *Phase Noise of Dispersion-managed Solitons*. **Phys. Rev. A** 80 011805:1–4, 2009.

20. E.T. Spiller, and W.L. Kath. *A Method for Determining the Most-Probable Errors in Nonlinear Lightwave Systems*. **SIAM J. on Appl. Dyn. Syst.** 7, 686–694, 2008.

21. E.T. Spiller, A. Budhiraja, K. Ide, and C.K.R.T. Jones. *Modified Particle Filter Methods for Assimilating Lagrangian Data into a Point-vortex Model*. **Physica D** 237 (10), 1498–1506, 2008.

22. J. Li, E.T. Spiller, and G. Biondini. *Noise-Induced Perturbations of Dispersion-Managed Solitons*. **Phys. Rev. A** 75, 053818:1–13, 2007.

23. E.T. Spiller, W.L. Kath, R.O. Moore, and C.J. Mckinstrie. *Computing Large Signal Distortions and Bit-Error-Ratios in DPSK Transmission Systems*. **Photon. Technol. Lett.** 17, 1022–1024, 2005.

C. Refereed Conference Proceedings Under Review:

1. J. Seidman, E.T. Spiller. *A Robust Scaled Vecchia Gaussian Process Approach for Computer Model-Based Learning of Physical Processes* **Symposium on Data Science & Statistics** 2026.

D. Refereed Conference Proceedings:

1. H. Lee, E.T. Spiller, and S.E. Minkoff. *Dimension reduction and global sensitivity metrics using active subspaces for coupled flow and deformation modeling*. **SEG Technical Program Expanded Abstracts** : 3240-3244, 2019.

2. L. Slivinski, E.T. Spiller, and A. Apte. *A Hybrid Particle-Ensemble Kalman Filter for High Dimensional Lagrangian Data Assimilation* **Dynamic Data-driven Environmental Systems Science Conference Proceedings** 263–273, 2015.

3. E.T. Spiller, G.M. Donovan, and W.L. Kath. *Direct Determination of Range Extension Due to Phase Conjugation in a Soliton-Based DPSK Transmission System.* **Proceedings on the Conference of Lasers and Electro-optics**, 1786–1788, 2005.

4. G.M. Donovan, E.T. Spiller and W.L. Kath. *Non-Gaussian Optical Field Statistics in a Long-Haul Soliton-Based DPSK transmission system.***Proceedings on the Conference of Lasers and Electro-optics**, 1497–1499, 2005.

5. E.T. Spiller, W.L. Kath, R.O. Moore, and C.J. McKinstrie. *Predicting the Failure Modes in DPSK Transmission Systems.* **Proceedings on the Conference of Lasers: Postconference Edition**, 2004.

E. Other (Includes abstracts, dissertations, reviews, technical reports, etc.):

1. E. Satterfield, N. Baker, C. Jones, R. Malek-Madani, M. Branicki, W. Campbell, A. Carrassi, S. Chen, P. Hassanzadeh, D. Hodyss, S. King, M. Morzfeld, H. Ngodock, N. Nichols, C. Sampson, E. Spiller, A. Stuart, PJ. van Leeuwen, K. Vinder, E. Van Vleck, and M. Yaremchuk. *NRL Atmospheric Data Assimilation and ONR Code 31: Workshop Proceedings*, 2021.

2. P. Tierz, A. Bevilacqua, S. Mead, E. Spiller, L. Sandri *Editorial: Field Data, Models and Uncertainty in Hazard Assessment of Pyroclastic Density Currents and Lahars: Global Perspectives* **Frontiers in Earth Science** (9), DOI=10.3389/feart.2021.665725, 2021.

3. E.T. Spiller, E.S. Calder, E.B. Pitman, M.J. Bayarri, A.K. Patra, J.O. Berger, and R.L. Wolpert. *Uncertainty Quantification 2012: Simulation-based Volcanic Hazard Assessment.* Ed. Gail Corbett. Philadelphia, PA: **SIAM News**, 2012. 1.

OTHER SCHOLARLY ACTIVITIES

A. Funded Research Support (major awards, external):

$560K post-tenure, $1.3M total (Note, $ amounts for projects below that are sub awards include only my portion of the award.)

1. NSF Confronting Hazards, Impacts and Risks for a Resilient Planet, "Planning: CHIRRP: Increasing resilience to fire through prefire assessments of postfire flow hazards: Co-producing solutions with communities." Co-PI. NSF-GEO/RISE 2434861.

2. NSF Computational and Data Enabled Science and Engineering, "Collaborative Research: Surrogates and Reduced Order Modeling for High Dimensional Coupled System." $100,000 (Total Direct Costs: $66,769 Total Indirect Costs: $33,230) August 2021-July 2024. PI, NSF-DMS 2053872.

3. NERC "Ixchel: Building understanding of the physical, cultural and socio-economic drivers of risk for strengthening resilience in the Guatemalan cordillera", $28,491 (Total Direct Costs: $28,491 Total Indirect Costs: N/A) April 2021-March 2024. Co-PI, NERC, GCRF Multi-Hazards Risk, NE/T010517.

4. FEMA (DHS), "Coastal Probabilistic Hazard Assessment", $28,339 (Total Direct Costs: $18,522, Total Indirect Costs: $9,817) October 2019-September 2020. Co-PI, DHS 5115356.

5. NSF PREEVENTS Track 1, "Coupling Uncertain Geophysical Hazards: Bringing together Geoscientists, Computational Mathematicians, and Statisticians to Advance Hazard Forecasting," $39,490 (Total Direct Costs: $36,513, Total Indirect Costs: $2,977). PI, NSF-GEO 1850742.

6. NSF Computational and Data Enabled Science and Engineering, "Collaborative Research: Using Precursor Information to Update Probabilistic Hazard Maps" for $80,000 (Total Direct Costs:$53,399 Total Indirect Costs:$26,601). September 2018-August 2020. PI, NSF-DMS 1821338.

7. NSF Computational and Data Enabled Science and Engineering, "Collaborative Research: Advancing Statistical Surrogates for Linking Multiple Computer Models with Disparate Data for Quantifying Uncertain Hazards" for $100,000 (Total Direct Costs: $68,843, Total Indirect Costs: $31,157). August 2016 – July 2018. PI, NSF-DMS 16224679.

8. NSF SEES Hazards, "Hazards SEES: Persistent volcanic crises resilience in the face of prolonged and uncertain risk" for $184,472 (Total Direct Costs: $127,392, Total Indirect Costs: $57,080), September 1 , 2015 – August 31, 2018. Co-PI NSF-EAR 1521855.

9. DOD/ONR Multidisciplinary University Research Initiative Renewal, "Dynamical Systems Theory and Lagrangian Data Assimilation in 4D Geophysical Fluid Dynamics," for $166,829 (Total Direct Costs, $121,541, Total Indirect Costs, $45,288). January 2014 – December 2015. PI, N000141110087

10. NSF SEES Hazards, "Hazards SEES Type 1: Persistent Volcanic Crises in the USA: From Precursors to Resilience" for $54,790 (Total Direct Costs: $38,813, Total Indirect Costs: $15,977), September 2013 – August 2014. Co-PI NSF-EAR 1331353.

11. NSF Computational and Data Enabled Science and Engineering, "Collaborative Research: Statistical and Computational, Models and Methods for Extracting Knowledge from Massive Disparate Data for Quantifying Uncertain Hazards" for $73,602 (Total Direct Costs: $52,184, Total Indirect Costs: $21,418). September 2012-August 2014. PI NSF-DMS 1228265.

12. DOD/ONR Multidisciplinary University Research Initiative, "Dynamical Systems Theory and Lagrangian Data Assimilation in 4D Geophysical Fluid Dynamics," for $211,834 (Total Direct Costs, $148,188, Total Indirect Costs, $63,196). October 2010 – September 2013. PI, N000141110087

13. Pacific Institute of Mathematical Sciences Summer School Proposal for $20,000; submitted October 2008, funded August 2010.

14. NSF FRG: "Collaborative Research: Prediction and Risk of Extreme Events Utilizing Mathematical Computer Models of Geophysical Processes" for $219,468 (Total Direct Costs: $151,599, Total Indirect Costs, $67,869). September 2008-August 2011. Co-PI, NSF-DMS 0757527.

B. Upcoming and Invited Addresses at Meetings, Colloquia, Seminars, etc. (last 10 years)
   ∗ denotes plenary talks

1. *Post-fire debris flow hazard assessment and runout forecasting.* ISI Word Statistics Congress, The Hague, Netherlands. October, 2025.

2. *The zero-censored Gaussian process for geophysical hazard analysis.* AI for Net Zero (UK, online). May 2025.

3. *Developing probabilistic pyroclastic flow hazard maps for Volcán de Fuego.* Ixchel Wrap-up Conference, Antigua, Guatemala. February, 2025.

4. *Data assimilation and uncertainty quantification in coupled geophysical models.* The SIAM Central States Section Annual Meeting, Kansas City, MO. October 2024.

5. *Surrogate-based hazard analyses for post-fire debris flow inundation.* The Conference on Computational Methods in Water Resources, Tucson, AZ. October 2024.

6. *A Surrogate-Based Strategy for Analyzing and Forecasting Geophysical Hazards.* Applied Math Seminar, Colorado State University, Fort Collins, CO, April 2024.

7. *Digital Twinning for Risk Assessment for Natural Hazards.* SIAM Conference on Uncertainty Quantification, February 2024.

8. *Constructing uncertainty quantified, probabilistic hazard maps at Fuego.* Cities on Volcanoes 12, Antigua, Guatemala. February 2024.

9. *Two recent advances in UQ with Gaussian process models: the zGP and the PPLE.* UQSay seminar series: UQ, DACE and related topics Paris Saclay, November 2023.

10. *Two recent advances in UQ with Gaussian process models.* Statistics Seminar, Colorado State University, Fort Collins, CO, October 2023.

11. *A surrogate-based strategy for analyzing and forecasting geophysical hazards .* MAA North Central Section Fall 2023. Duluth, MN, September 2023.

12. *A surrogate-based strategy for analyzing post-fire debris flow inundation hazards.* International Union of Geodesy and Geophysics. Berlin, Germany July 2023.

13. *Uncertainty Quantification for Debris Flow Hazards.* SIAM Conference on Mathematical & Computational Issues in the Geosciences, Bergen, Norway, June 21, 2023.

14. *A surrogate-based strategy for analyzing post-fire debris flow hazards.* SIAM Conference on the Mathematics of Planet Earth, Pittsburg PA, July 13, 2022.

15. *Surrogates for dynamic computational models: what natural disasters can teach pharmacology.* Quantitative Systems Pharmacology Conference, Leiden, The Netherlands, April 22, 2002.

16. *Emulators of post-fire debris-flows.* SIAM Conference on Uncertainty Quantification, Atlanta GA, April 15, 2022.

17. *Uncertainty Quantification for Coupled Multi-Physics Systems.* Joint Math Meeting, virtual, April 6, 2022.

18. *Sensitivity Analysis: An Introduction & Examples.* ISoP Webinar, virtual, December 6, 2021.

19. *SAMSI's influence on UQ.* SAMSI Closing Workshop, Durham NC, August 21, 2021.

20. *CIMPA Summer School: forecasting uncertain hazards in a changing climate.* CIPMA Mathematics of Climate Science Summer School, virtual, July 8, 2021.

21. *Assessing and forecasting uncertain hazards.* Applied Math Seminar, University of New Mexico, virtual, April 4, 2021.

22. *Uncertainty Quantification for Coupled Multi-Physics Systems.* SIAM Conference on Computational Science and Engineering, virtual, March 4, 2021.

23. *Challenges in particle filtering.* NRL Atmospheric Data Assimilation/ONR Workshop, virtual, November 17, 2020.

24. *Uncertainty Quantification for Coupled Multi-Physics Systems.* Joint Statistical Meetings, virtual, August 5, 2020.

25. *All models are wrong...how can they be useful? how useful can the be?* Joint Statistical Meetings, virtual, August 3, 2020.

26. *Assessing and forecasting hazards in an uncertain future.* SIAM Conference on Uncertainty Quantification[†]. Munich, Germany, March 26, 2020. († cancelled due to COVID-19)

27. *Assessing and forecasting hazards in an uncertain future.* MSSC Colloquium, Marquette University. Milwaukee, WI, February 28, 2020.

28. *Hazard forecasts with uncertainty.* Soufriére Hills Volcano Scientific Advisory Committee 2019 Meeting, Monserrat (skype lecture and discussion) November 13, 2019.

29. *Forecasting volcanic hazards with uncertainty: is it over? is it safe?* Isaac Newton Institute, Cambridge, United Kingdom, July 26, 2019.

30. *A surrogate based approach to nonlinear, non-Gaussian joint state-parameter data assimilation* International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 15, 2019.

31. *Forecasting volcanic hazards with uncertainty: is it over? is it safe?* International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 15, 2019.

32. *A coupled parallel partial emulator for flow and deformation modeling* SAMSI-MUMS Transition Workshop, Chapel Hill, NC, May 15, 2019.

33. *Quantifying uncertainty in hazard forecasting* SAMSI MUMS Undergraduate Research Meeting, RTP, NC, February 26, 2019.

34. *Short-term probabilistic hazard mapping – forecasting catastrophe without stationary assumptions* SAMSI Postdoc Seminar, RTP, NC, October 3, 2018.

35. *Emulators: probabilistic hazard mapping and uncertainty quantification* Cities On Volcanoes; Workshop on Critical Facilities, Naples, Italy, September 8, 2018.

36. *An overview of reduced-order models and emulators* SAMSI MUMS Opening Workshop, Durham, NC, August 20, 2018.

37. *Multi-objective sequential design for hazard mapping* SIAM Conference on Uncertainty Quantification, Garden Grove, CA, April 19, 2018.

38. *Emulators for forecasting and UQ of natural hazards* Surrogate models for UQ in complex systems, Isaac Newton Institute, Cambridge UK, February 7, 2018. item *Short-term probabilistic hazard mapping – forecasting catastrophe without stationary assumptions* Math Dept Colloquium, Montclair State University, Montclair, NJ, November 13, 2017.

39. *Short-term probabilistic hazard mapping – forecasting catastrophe without stationary assumptions* Math Dept Colloquium, Tulane University, New Orleans, LA, October 19, 2017.

40. **Uncertainty in hazard forecasting; Or where will you go when the volcano blows?* PHM Conference, Luminary Talk, Tampa, FL, October 3, 2017.

41. *A probabilistic hazard mapping tool for the Long Valley volcanic region* IAVCEI, Portland, OR, August 14, 2017.

42. *A hybrid filter for assimilating Lagrangian data into a high-dimensional model* SIAM Meeting on Controls, Pittsburgh, PA. July 12, 2017.

43. *Short-term probabilistic hazard mapping – forecasting catastrophe without stationary assumptions* ISI Word Statistics Congress, Marrakech, Morocco. July 19, 2017.

44. *An Overview of Uncertainty Quantification in Geophysical Hazard Analyses.* SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland. April 7, 2016.

45. *Lagrangian Data Assimilation.* Workshop on Mathematical Issues in Sea-Ice Modeling and Data Assimilation. Bergen, Norway. March 17, 2016.

46. *A hybrid particle-ensemble Kalman filter for assimilating Lagrangian data into a high-dimensional model.* Ocean Sciences, New Orleans, LA. February 25, 2016.

47. *Emulators and Hazard Analysis.* Uncertainty in Geo-science: A Workshop on Hazard Analysis. University at Buffalo, Buffalo NY. March 15, 2016.

C. **TEACHING ACTIVITIES DATA**

    A. Regular Courses Taught at Marquette:

<u>Year</u>	<u>Semester</u>	**Course # and Title**	<u>Credit</u>	**Enrollment**
2008	Fall	081 Calculus 2	4	29
		146 Numerical Analysis	3	9
2009	Spring	080 Calculus 1	4	61
		073 Calculus for Biological Sciences	3	49
	Fall	4540 Numerical Analysis	3	8
		4630 Mathematical Modeling	3	21
2010	Spring	4720 Statistical Methods	3	35
		6020 Simulation	3	24
	Fall	MATH 1450 Calculus 1	4	120
		MATH 4540 Numerical Analysis	3	14
2011	Spring	MATH 4630 Math Modeling/Analysis	3	23
		MSCS 6020 Simulation	3	5
	Fall	Junior Sabbatical		
2012	Fall	MSCS 8999 Doctoral Dissertation	1-12	1
		MATH 4630 Math Modeling	3	19
		MATH 4540 Numerical Analysis	3	14
2013	Spring	MSCS 6020 Simulation	3	8
		MATH 4720 Statistical Methods	3	27
	Fall	MATH 1450 Calculus 1	4	138
		MSCS 9999 Doc Dissertation	0	1
2014	Spring	MATH 1451	4	101
		MATH 3100 Linear Algebra	3	29
	Fall	MATH 1450 Calculus 1	4	126
		MATH 4500 Theory of Diff Eqns	3	17
		MSCS 6995 Doc Dissertation	3	1
		MSCS 8999 Doc Dissertation	1-12	1
		MSCS 9999 Doc Dissertation	0	1
2015	Spring	MATH 1451 Calculus 2	4	56
		MATH 4720 Statistical Methods	3	36
	Fall	MATH 4540 Numerical Analysis	3	24
		MSCS 6995 Doc Dissertation	3	1
		MSCS 8999 Doc Dissertation	1-12	1
		MSCS 9999 Doc Dissertation	0	1
2016	Spring	MSCS 6020 Simulation	3	29
	Fall	MATH 4500 Theory of Diff Eqns	3	24
2017	Spring	MATH 3100 Linear Algebra	3	28
	Fall	MATH 1450 Calculus 1	4	116
		MATH 3100 Linear Algebra	3	29
		MATH 4995 Independent Study	1	1

Year	Semester	Course # and Title	Credit	Enrollment
2018	Spring	MATH 3100 Linear Algebra	3	24
		MATH 3100 Linear Algebra	3	20
		MATH 4995 Independent Study	1	1
	Fall	Sabbatical		
2019	Spring	Sabbatical		
	Fall	MATH 4540 Numerical Analysis	3	15
		CORE 1929 Foundations Methods of Inquiry	3	225
2020	Spring	Grant buyout		
	Fall	MATH 4540 Numerical Analysis	3	15 (in-person, hyflex)
		CORE 1929 Foundations Methods of Inquiry	3	245 (online, asynchronou
2021	Spring	MATH 3100 Linear Algebra	3	10 (in-person, hyflex)
	Fall	MATH 1410 Calc for Bio Sciences	3	37
		CORE 1929 Foundations Methods of Inquiry	3	285
2022	Spring	MSSC 6020 Statistical Simulation	3	14 (in-person, hyflex)
	Fall	MATH 3700 Intro to Modeling & Sim	3	15
		CORE 1929 Foundations Methods of Inquiry	3	225
2023	Spring	MATH 3100 Linear Algebra	3	18
		MSSC 6090 Res Meth/Prof Dev	1	11
	Fall	Sabbatical		
2024	Spring	Sabbatical		
	Fall	MATH 3100 Linear Algebra	3	25
		MATH 4540/5540 Numerical Analysis	3	17
2025	Spring	MSSC 6020 Statistical Simulation	3	14
	Fall	MATH 1450 Calculus 1	4	107

B. Graduate Student Training

Essays or Thesis Directed at Marquette:

Current	PhD	Computational Mathematical &Statistical Sciences	Josh Seidman
2025	PhD	Computational Mathematical &Statistical Sciences	Joey Lyon
2022	MS	Computational Mathematical & Statistical Sciences	Eli Horner
2022	MS	Computational Mathematical & Statistical Sciences	Joey Lyon
2020	MS	Computational Sciences	Hyunjung Lee
2017	PhD	Computational Sciences	Regis Rutarindwa
2016	MS	Computational Sciences	Adam Mallen

Essays or Thesis Directed Elsewhere:

2024	PhD	UT Dallas	Mathematics	Tamara Dolski

Essay or Thesis Committee Member at Marquette:

2019	PhD Thesis	Computational Sciences	Xuyong Yu
2018	PhD Thesis	Civ Eng	Matthew Thomas
2018	PhD Thesis	ECE	Michele Malinowski
2016	PhD Thesis	ECE	Juan Tapiero Bernal
2014	PhD Thesis	Computational Sciences	Sampson Kiware
2011	PhD Thesis	Mathematics	Balamurugan Pandiyan

Essay or Thesis Committee Member Elsewhere:

2024	PhD Thesis	ICTS/TIFR	Physics	Shashank Roy
2017	PhD Thesis	Duke University	Statistics	Ksenia Kyzyurova
2014	PhD Thesis	Brown University	Applied Mathematics	Laura Slivinski
2013	PhD Thesis	Duke University	Statistics	Jianyu Wang

D. SERVICE ACTIVITIES DATA

A. On Campus:

University Academic Senate and Secretary, elected	2025-26
University Academic Senate and Senate Executive Committee, elected	2021-23; 24-25
Sabbatical Review Committee, appointed	2021-2022
Core Curriculum Implementation Committee, Appointed	2017-2018
Core Curriculum Review Committee, appointed	Fall 2019

Department Activities:

P&T Area Committee Representative	2024-2026	appointed
Colloquium Coordinator	2022-2023	appointed
Co-Director of Data Science	2019-2021	appointed
Search Committee Chair	2019, 2024	appointed
Graduate Committee	2009-11, 12-16, 17-18, 21-22, 24-26	appointed
Undergraduate Committee	2016-17	appointed
Assistant Chair	2015-17	elected
Executive Committee	2015-17	ex-officio
Executive Committee	2013-15 , 19-21, 21-23, 25-27	elected
Text Book Selection Committee (Differential Equations)	2014	appointed
Search Committees	2011, 15	appointed
Comprehensive Exam Committee	2010-	appointed
Faculty Advisor to Pi Mu Epsilon	2008-2009	appointed
Faculty Advisor to the Math Club	2008-2009	appointed

B. Off Campus:

  i. Editorial Activities
    1. Associate Editor, the SIAM/ASA *Journal of Uncertainty Quantification*, January 2020-December 2025.
    2. Guest Editor, *Foundations of Data Science* Special Issue on Data Assimilation. September 2020- August 2021.
    3. Guest Editor, *Frontiers* Special Issue in Volcanology and Hazards, Research Topic: Field Data, Models and Uncertainty in Hazard Assessment of Pyroclastic Density Currents and Lahars: Global Perspectives March 2020-August 2021.

  ii. Professional Organization Committees:
    1. SIAM Committee on Programs and Conferences, member. 2020-2025.

  iii. Reviews: Papers and Grants (last 10 years)
    1. Refereed paper for Quarterly Journal of the Royal Meteorological Soc., December 2025.
    2. Refereed paper for SIAM/ASA Journal on Uncertainty Quantification, February 2025.
    3. Refereed paper for Bulletin of Volcanology, January 2025.
    4. Reviewer for Journal of the Royal Statistical Society: Series C, October 2024.
    5. Reviewer for Discrete and Continuous Dynamical Systems Series B, June 2024.
    6. Reviewer for Los Alamos Laboratory Programs, May 2024.
    7. Reviewer for Monthly Weather Review, February 2023.
    8. Panelist for grant proposals, NSF, December 2022.
    9. Refereed paper for Monthly Weather Review, Oct 2022.
    10. Reviewer for ASCR grant proposals, DOE, May 2022.

11. Refereed paper for SIAM/ASA Journal on Uncertainty Quantification, February 2022.
12. Refereed paper for Bulletin of Volcanology, December 2021.
13. Refereed paper for Nonlinear Processes in Geophysics, November 2021.
14. Refereed paper for Technometrics, April 2021.
15. Refereed paper for Nonlinear Processes in Geophysics, April 2021.
16. Panelist for grant proposals, NSF, March 2021.
17. Refereed paper for Foundations of Data Science, January 2021.
18. Refereed paper for Monthly Weather Review, December 2020.
19. Ad-hoc reviewer for grant proposal, UKRI, November 200.
20. Refereed paper for SIAM/ASA Journal on Uncertainty Quantification, June 2020.
21. Refereed paper for Quarterly Journal of the Royal Meteorological Soc., January 2020.
22. Panelist for grant proposals, NSF, December 2019.
23. Refereed paper for Monthly Weather Review, January 2019.
24. Ad-hoc reviewer for grant proposal, NSF, June 2019.
25. Panelist for grant proposals, NSF, December 2018.
26. Ad-hoc reviewer for grant proposal, NSF, November 2018.
27. Panelist for grant proposals, NSF, May 2018.
28. Refereed paper for Chaos, July 2017.
29. Panelist for grant proposals, NSF, March 2017.
30. Refereed paper for Quarterly Journal of the Royal Meteorological Soc., March 2017.
31. Reviewed grant proposals for DOE, February 2017.
32. Refereed paper for Monthly Weather Review, February 2017.
33. Refereed paper for SIAM Review, December 2016.
34. Refereed paper for Simulation and Modeling Practice and Theory, June 2016.
35. Panelist for grant proposals, NSF, May 2016.

iv. Scholarly Event Organizing
1. Organizing the IMSI workshop on Uncertainty Quantification Strategies for Multi-physics Systems and Digital Twins, February 2025.
2. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Trieste, Italy, February 2024
3. Organized the FFIRE (post-Fire debris Flow Impacts and REcovery) Workshop, La Jolla, CA August 2022.
4. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Atlanta, GA, April 2022
5. Organizing the SIAM Annual Meeting, July 2021 (*Originally scheduled to be in Spokane, WA transitioned to fully online)
6. Post-fire Debris Flow Forecasting + UQ Zoom Meeting (*Originally scheduled as 1.5 day workshop in Boulder, CO; modified due to COVID-19), April 16, 2020
7. *Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Munich, Germany, March 2020 (*cancelled due to COVID-19)
8. Co-organized of the SIAM Conference on Applied Dynamical Systems, Snowbird, UT, May 2019

9. Organized the SAMSI-MUMS transition workshop and Statistical Perspectives on Uncertainty Quantification, May 2019

10. Organized the Workshop on Coupling Uncertain Geophysical Hazards: Bringing together Geoscientists, Computational Mathematicians, and Statisticians to Advance Hazard Forecasting, Raleigh, NC, March 2019

11. Co-organized a year-long SAMSI program: Model Uncertainty: Mathematical and Statistical, 2018-19

12. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Garden Grove, CA, April 2018

13. Organized a mini-tutorial, SIAM Conference of Applied Dynamical Systems, Snowbird, UT, May 2017

14. Organized a mini-tutorial, SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland, April 2016

15. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Lausanne, Switzerland, April 2016

16. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Savannah, Georgia, April 2014

17. Organized a mini-symposium, SIAM Conference on Mathematical and Computational Issues in the Geosciences, Padova, Italy, June 2013

18. Organized a mini-symposium, SIAM Conference on Uncertainty Quantification, Raleigh, North Carolina, April 2012.

19. Organizer, Summer School on Computer Models and Geophysical Risk Analysis, Vancouver, British Columbia, Canada, August 6-10, 2010.