JADE MITCHELL

Assistant Professor
Michigan State University
Biosystems & Agricultural Engineering
524 S. Shaw Lane, 206 Farrall Hall
East Lansing, MI 48824
517-353-4544 (phone); jade@msu.edu (e-mail)

EDUCATION

2010, Ph.D.	**Environmental Engineering**, Drexel University, Philadelphia, PA.
2007, M.S.	**Civil Engineering,** Drexel University, Philadelphia, PA.
1997, B.S.	**Civil and Environmental Engineering**, University of Pittsburgh, Pittsburgh, PA.

PROFESSIONAL EXPERIENCE

8/2012 – Present	**Assistant Professor**, Biosystems and Agricultural Engineering (BAE), Michigan State University (MSU), East Lansing, MI. **Program Director**, Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRA III), Michigan State University (MSU), East Lansing, MI. (8/2015 – Present)
3/2012-8/2012	**Risk Analyst,** U.S. Department of Agriculture (USDA), Food Safety Inspection Service, Risk Assessment Division, Washington, DC.
9/2010-3/2012	**Post-Doctoral Fellow**, U.S. Environmental Protection Agency (U.S. EPA), National Exposure Research Laboratory, Research Triangle Park, NC.
7/2008-6/2010	**NSF GK-12 Fellow**, Drexel University and James Rhoads Middle School, Philadelphia, PA.
9/2006-9/2010	**Graduate Research Assistant (PhD)**, Drexel University, Philadelphia, PA.
6/2008-10/2008	**Graduate Research Assistant, Oak Ridge Institute for Science and Education**, U.S. Army Public Health Command, Aberdeen, MD.
3/2005-7/2008	**Teaching Assistant**, Drexel University, Philadelphia, PA.
6/2006-9/2006	**Graduate Research Intern**, Pacific Northwest National Laboratory, Applied Geology and Geochemistry, Richland, WA.
6/2005-3/2007	**Graduate Research Assistant (MS)**, Drexel University, Philadelphia, PA.
3/2002-2/2005	**Engineer**, McMahon Associates, Fort Washington, PA.
11/2000-3/2002	**Highway Designer,** McCormick Taylor & Associates, Philadelphia, PA.
4/2000-10/2000	**Assistant Project Manager,** Bovis Lend Lease, Bethesda, MD.
1/1998-4/2000	**Project Engineer,** Tompkins Builders/J.A. Jones Co., Washington, DC.
8/1995-5/1997	**Project Intern**, Corps of Engineers, Pittsburgh, PA.

AWARDS AND HONORS (postgraduate only)

2017	***Excellence in Teaching Award***, Michigan State University, College of Agriculture and Natural Resources. *Recognizes individuals who have demonstrated a commitment to quality scholarship of teaching as evidenced by their contributions to teaching and learning and demonstrated success.*
2014	***Scientific and Technological Achievement Awards (STAA) Award***, U.S. EPA Level II, "ExpoCast High Throughput Framework for Rapid Prioritization of Human Exposure to Environmental Chemicals".
2011	***Pathfinder Innovation Project***, U.S. EPA, "The Systems Reality Modeling Project Part 1: Chemical Inventory".
2011	"***S" Award – Special Accomplishment Recognition Award***, U.S. EPA. *Recognizes excellence and leadership in developing innovative research in the area of exposure screening and prioritization of chemicals.*

GRANT FUNDING (postgraduate only)
$4.06 million total on 14 grants; $2.57 million to home institutions

Active Grants to Michigan State University

#	Dates	Agency	Total	Inst. Total
1.	2017-2020	Purdue University; U.S. EPA (Prime)	$1.98M	$912,088
	Title:	*National Priorities Research Grant: Right Sizing Tomorrow's Water Systems for Efficiency, Sustainability, and Public Health*		
	Role:	**Lead PI at MSU:** Responsible for administrative, financial and progress reporting; Responsible for integrating data collected by co-PIs at Purdue, San Jose State, and MSU in order to determine risks associated with opportunitstic pathogens in drinking water systems based on chemical and microbial analysis; building design and drivers of water conservation.		
	Co-PIs:	Beecher, Dreelin, Nejadhashemi, Rose, Syal, Welton (Lead PI at Purdue)		
2.	2017-2019	*National Center for Socio-Environmental Synthesis(SESYNC)*	*No dollar amount specified - Four, three-day multidisciplinary research meetings at SESYNC, Annapolis, MD*	
	Title:	*Risk Perception in the Provision of Aquatic Ecosystem Services*		
	Role:	**Senior Key Personnel:** Core team member of multidisciplinary, multi-university project to evaluate objective and subjective risks in relation to policy adoption and implementation in relation to toxic algal blooms in two lake ecosystems; Contributing to development of risk indicators and agent based modeling sub-groups		
	Co-PIs:	Axelrod (MSU), Aytur (University of New Hampshire), Webster (Lead PI at Dartmouth), Wilson (Ohio State University), and Zia (University of Vermont)		
3.	2017-2018	MSU Center for Research on Ingredient Safety	$75,000	Internal (MSU)
	Title:	*Assessment of Exposure and Risk Associated with Cholesterol Oxidation Products in Food Using Dietary Intake Modeling*		
	Role:	**Co-PI:** Responsible for developing exposure models to determine the amount of cholesterol oxidation products consumed in foods as the result of processing time and temperature for risk assessment		
	Co-PIs:	Medina-Meza (PI)		
4.	2016-2017	Procter & Gamble	$51,599	$51,599
	Title:	*QMRA to Assess the Effect of Antimicrobial Residual Efficacy on Risk of Infection*		
	Role:	**PI:** Responsible for administrative, financial and progress reporting; Responsible for developing project and risk assessment modeling for scenarios associated antimicrobial products for infection control		
	Co-PIs:	Rose (Advisory capacity on microbial data collection)		
5.	2015-2017	MSU Center for Water Science	$60,000	Internal (MSU)
	Title:	*Citizen Science Study of Contaminant Exposures Related to Water Affordability in Detroit*		
	Role:	**PI** on multidisciplinary, multiple PI project: Responsible for developing experimental design for water testing related to degraded water quality, interpreting and analyzing results; coordiantion with third party labs, billing and reporting; integrating efforts with social science research on community based participatory citizen science to explore water quality impacts, exposure and risk related to conservation and water affordability in Detroit		
	Co-PIs:	Carrera, Radonic		

Continued on next page

6.	2015-2017	MSU Center for Health Impacts of Agriculture	$250,000	Internal (MSU)
	Title:	*Antibiotic Resistance Genes in the Environment: Organizing and Expanding MSU Capabilities for Risk Reduction*		
	Role:	**Co-PI** on multidisciplinary seed funding project: Responsible for developing and conducting a field study and lab studies for the purpose of collecting preliminary data to address direct and indirect transmission of antimicrobial-resistant pathogens and genes among humans, animals and the environments to support the application of risk assessment methods		
	Co-PIs:	Boyd, Cole, Erskine, Hashsham, Lapinski, Li, Manning, Norby, Powers-Schilling, Rozeboom, Stedtfeld, Teppen, Tiedje (PI), Zhang and Zhang		
7.	2014-2019	NIH	$791,506	$791,506
	Title:	*Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRA III)*		
	Role:	**Lead PI/PD** at lead institution on multiple PI/PD project: Responsible for leading overall research and education efforts; creating research case studies; developing models and tools for research and educational use in microbial risk assessment; coordinating, managing and administering a yearly short course in QMRA; administrative, financial and progress reporting		
	Co-PIs:	Weir (PI/PD at Ohio State University)		
8.	2014-2017	MSU Midland Research Institute for Value Chain Creation (a.k.a. AXIA Institute)	$325,000	Both Internal MSU and Dow Chemical
	Title:	*Building a Knowledge Value Chain to Support Global Water Safety - Global Water Pathogen Project in collaboration with UNESCO; http://www.waterpathogens.org*		
	Role:	**Senior Key Personnel** on multidisciplinary, multi-institution project: Responsible for leading a review and evaluation of persistence data in water media to support project to provide an updated review of the efficacy of sanitation technologies and a compendium of waterborne pathogen information and quantitative data to support risk assessment		
	Co-PIs:	Rose		

Previous Grants to Michigan State University

9.	2016-2017	MSU ESPP Flint Funds	$26,000	Internal (MSU)
	Title:	*Infrastructure, Trust, and the Shadow of Flint*		
	Role:	**Co-PI:** Responsible for developing water infrastructure scenarios and simulations in a game created to evaluate trust and decision-making water infrastructure		
	Co-PIs:	Gore, Hamm (PI), Pearson		
10.	2015-2016	Procter & Gamble	$29,952	$29,952
	Title:	*Quantitative Microbial Risk Assessment (QMRA) for Various P&G Antimicrobial Products on Porous and Nonporous Surfaces*		
	Role:	**PI:** Responsible for overall project management; developing risks models for pathogens on surfaces in order to evaluate the efficacy of surface treatments; administrative, financial and progress reporting		
	Co-PIs:	Rose (Advisory capacity on microbial data collection)		
11.	2013	NSF PASI	$99,986	$99,986
	Title:	*Quantitative Microbial Risk Assessment Innovation Institute (QMRA II)*		
	Role:	**Co-PI:** Responsible for developing new material on quantitative analysis for microbial risk assessment of pathogens in water environments for scenarios across North and South America; lecturing and mentoring a research case study group during an instructional workshop		
	Co-PIs:	Rose (PI), Dreelin		

Continued on next page

12.*	2012-2013	U.S. EPA and U.S. Dept. of Homeland Security (Prime)	$10M	$10M, $189,449 to Co-PI through MSU CAMRA
	Title:	*Center for Advancing Microbial Risk Assessment (CAMRA)*		
	Role:	**Co-PI** on multidisciplinary, multi-institutional project: Responsible for leading persistence modeling and data analysis to support quantitative microbial risk assessments for biological agents used in bioterrorism within the Assessment-Analysis sub-project		
	Co-PIs:	Bolin, Hashsham and Rose (PI) *Allocated post initial award/agency approved as Co-PI officially after joining MSU in 2012		

Pre-MSU Post-Doctoral Research Funding

13.	2010-2012	U.S. EPA and Dept. of the Army	$63,175	Internal (U.S. EPA)
	Title:	*Multicriteria Decision Analysis and Exposure-Based Prioritization; Interagency Agreement No. DW96958076*		
	Role:	**Senior Key Personnel:** Responsible for developing risk based decision framework to support prioritizing chemicals based on exposure potential across their life-cycle; created multi-agency collaborative effort with the U.S. Army Corps of Engineers		
	Co-PIs:	Vallero (PI)		
14.	2010-2012	U.S. EPA	$150,000	Internal (U.S. EPA)
	Title:	*Exposure-Based Chemical Prioritization Workshops and Reports; Professional Service Contracts*		
	Role:	**Senior Key Personnel:** Responsible for coordination of a workshop for expert elicitation in support of exposure-based prioritization of chemicals; meta-analysis across exposure models evaluated for their utility for high-throughput evaluation of thousands of chemicals		
	Co-PIs:	Vallero (PI)		

PUBLICATIONS (TOTAL PUBLISHED = 33; PEER-REVIEWED = 29)

([1] Graduate Student or Post-Doctoral mentored, [2] Student advised through independent study or course, *Corresponding author)

PEER-REVIEWED JOURNAL ARTICLES (17 published; 3 accepted with revision, 5 in review)

Published (17)

1. K. S. Enger[1], **J. Mitchell,*** B. Murali[1], D. N. Birdsell, P. Keim, P. L. Gurian and D. M. Wagner. "Evaluating the Long-Term Persistence of *Bacillus* spores on Common Surfaces," *Microbial Biotechnology* (in press).
2. M. Salehi, M. Abouali[1], M. Wang, Z. Zhou, A.P. Nejadhashemi, **J. Mitchell**, S. Caskey and A. Whelton. "Case study: Fixture water use and drinking water quality in a new residential green building," *Chemosphere* (in press or online at: https://doi.org/10.1016/j.chemosphere.2017.11.070)
3. A. Chabrelie [1], **J. Mitchell,*** J. Rose, D. Charbonneau, and Y. Ishida. "Evaluation of the Influenza m Reduction from Antimicrobial Spray Application on Porous Surfaces," *Risk Analysis* (in press or online at: DOI: 10.1111/risa.12952)
4. P. Hatami Bahman Beiglou[1], C. Gibbs, L.Rivers, and U. Adhikari[1] and **J. Mitchell**.* "Applicability of Benford's Law to Compliance Assessment of Self-Reported Wastewater Treatment Plant Discharge Data," *Journal of Environmental Assessment Policy and Management* (2017) 19(4) 1750017. Accessible at https://doi.org/10.1142/S146433321750017X)
5. M. Weir, **J. Mitchell**, W. Flynn and J. M. Pope. "VizDR a Microbial Dose Response Visualization and Modeling Application for QMRA Modelers and Educators," *Environmental Modelling & Software*. (2017) 88: 74-83. http://dx.doi.org/10.1016/j.envsoft.2016.11.011

6. S. Tamrakar, J. Henley, P. Gurian, C. Gerba, K. Enger[1], **J. Mitchell** and J. Rose. "Persistence analysis of poliovirus on three different types of fomites," *Journal of Applied Microbiology* (2017)122(2): 522–530. doi: 10.1111/jam.13299
7. L. Rivers; T. Dempsey, **J. Mitchell** and C. Gibbs. "Environmental Regulation and Enforcement: Structures, Processes and the Use of Data for Fraud Detection," *Journal of Environmental Assessment Policy and Management* Vol. 17, No. 3 (2015) doi: 10.1142/S1464333215500337
8. Y. Brooks, A. Aslan, S. Tamrakar[1], B. Murali[1], **J. Mitchell**; and J. Rose. "Analysis of the persistence of enteric markers in sewage polluted water on a solid matrix and in liquid suspension," *Water Research* (2015) 76:201-202
9. M. Goldsmith, C. M. Grulke, R. D. Brooks, T. R. Transue, Y. Tan, A. M. Frame, P. P. Egeghy, R. D. Edwards, D. T. Chang, R. Tornero-Velez, K. K. Isaacs, A. Wang, J. Johnson, K. Holm, M. Reich, **J. Mitchell**, D. Vallero, L. Phillips, M. Phillips, J. F. Wambaugh, R. S. Judson, T. Buckley, C. C. Dary. "Development of a Consumer Product Ingredient Database for Chemical Exposure Screening and Prioritization," *Food and Chemical Toxicology*. (2014) 65: 269-79. doi: 10.1016/j.fct.2013.12.029
10. **J. Mitchell**, N. Pabon, Z. Collier, P. Egeghy, E. Cohen-Hubal, I. Linkov and D. Vallero. "A Decision Analytic Approach to Exposure-Based Chemical Prioritization," *PLoS ONE* (2013) 8(8): e70911
11. **J. Mitchell***, J. Arnot, O. Jolliet, P. Georgopolous, S. Isukapalli, S. Dasgupta, M. Pandian, J. Wambaugh, P. Egeghy, E. Cohen-Hubal and D. Vallero. "Comparison of Modeling Approaches to Prioritize Chemicals Based on Estimates of Exposure and Exposure Potential," *Science of the Total Environment* (2013) 458:555-567
12. J. Wambaugh, R. Woodrow Setzer, D. Reif, S. Gangwal**, J. Mitchell-Blackwood**, J. Arnot, O. Joliet, A. Frame, J. Rabinowitz, T. Knudsen, R. Judson, P. Egeghy, D. Vallero and E. A. Cohen Hubal. "High Throughput Models for Exposure-Based Chemical Prioritization in the ExpoCast Project," *Environmental Science and Technology* (2013) 47(15):8479-88
13. **J. Mitchell-Blackwood,*** P. L. Gurian, R. Lee and B. Thran. "Variance in *Bacillus anthracis* Virulence Assessed through Bayesian Hierarchical Dose-Response Modeling," *Journal of Applied Microbiology* (2012) 113 (2) 265–275
14. **J. Mitchell-Blackwood,*** P. L. Gurian and C. O'Donnell. "Finding Risk-Based Switchover Points for Response Decisions for Environmental Exposure to *Bacillus anthracis," Human and Ecological Risk Assessment* (2011) 17(2) 489-509
15. **J. Mitchell-Blackwood,*** P. L. Gurian, A. Kumar and M. Sarich. "Iron Oxide Coating of Geosynthetic Fibers for Water Treatment Applications," *Geosynthetic International* (2008) 15(6) 471-479
16. A. Kumar, P. L. Gurian, R. H. Bucciarelli-Tieger and **J. M. Blackwood.** "Iron-Oxide-Coated Fibrous Sorbents for Arsenic Removal," *Journal of the American Water Works Association* (2008) 100(4) 151-164
17. Y. Shin, **J. M. Blackwood**, I. Bae, B. W. Arey and G. J. Exarhos. "Synthesis and Stabilization of Selenium Nanoparticles on Cellulose Nanocrystal," *Material Letters* (2007) 61(21) 4297-4300

Under Review or Revision (8)

1. **J. Mitchell**,* L. Sifuentes, A. Wissler[1], S. Abd-Elmaksoud, G. Lopez and C. Gerba. "Ultraviolet light doses needed to inactivate bacteria and virus on fomite surfaces," *Journal of Applied Microbiology* (**accepted** with minor revisions December 2016, resubmitted October 2017, accepted January 2018, under final editorial review)
2. K.A. Hamilton, A. Chen[2], E. de-Graft Johnson[2], A. Gitter[2], S. Kozak[2], C. Niquice[2], A. Zimmer-Faust[2], M. H. Weir, **J. Mitchell**, and P. Gurian. "Health risks due to consumption of shrimp produced using wastewater-fed aquaculture." *Microbial Risk Assessment*, (submitted November 2017, **accepted** with revisions January 2018, under review)
3. **J. Mitchell*** and C. N. Haas. "Ebola Virus Dose Response Model Development from Primate Data," *Risk Analysis* (submitted August 2017, **accepted** with revisions Sept. 2017, under revision)
4. K. Dean[1], Mark H. Weir and **J. Mitchell**.* "Development of a Dose-Response Model for *Naegleria fowleri*," *Human and Ecological Risk Assessment* (submitted December 2017, under review)

5. S. Akram[1], X. Guo, R. Stedfeld, M. Johnson, A. Chabrelie[1] and **J. Mitchell**.* "Linking antibiotic usage to proliferation of antimicrobial resistance in the environment: A cases study of a MI dairy farm," FEMS Microbiology Ecology (submitted November 2017, under review)
6. A. Bope, M. Weir, A. Pruden, M. Morowitz, **J. Mitchell** and K. Dannemiller. "Translating Research to Policy at the NCSE 2017 Symposium "Microbiology of the Built Environment: Implications for Health and Design," *Microbiome* (submitted September 2017, under review)
7. U. Adhikari[1], M. Weir, K. Boehnke[2], A. Chabrelie[1], E. McKenzie[2], L. Ikner[2], M. Wang[2], Q. Wang[2], C. Haas, J. Rose and **J. Mitchell.*** "Risk of Infection from Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV) in a Hospital Setting: A Case Study Based on a South Korean Spreading Scenario," *Risk Analysis* (submitted July 2017, under review)
8. S. Akram[1], Y. Kim[1], A. D. Wissler[1], K. J. Dean[1], J. B. Rose and **J Mitchell.*** "A meta-analysis for determining the persistence pattern of human-associated *Bacteroidales* populations in environmental waters," (submitted July 2017, under revision)

PEER-REVIEWED <u>FULL</u> CONFERENCE PAPERS/ PUBLICATIONS AS PROCEEDINGS (9)

1. J. Carrera, **J. Mitchell** and L. Radonic. "Community Based Participatory Research and Citizen Science for Community Organizing around Water Quality and Water Shutoffs," *2017 American Sociological Association Annual Meeting/Water & Inequality Panel/Environment & Technology*, Montreal, QC Canada (August 12-15, 2017)
2. **J. Mitchell**, M. Weir, J. Rose and J. Libarkin. "The Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRAIII) – A Platform for Cross Disciplinary Training of Engineers with Social and Biological Scientists to Address Public Health Issues," *Proceedings of the 2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017), Accessible at: https://peer.asee.org/28995
3. M. Weir, J. Mitchell, A. Mraz, and J. Rose. "QMRA Wiki: An educational tool for interdisciplinary teaching of risk modeling in engineering curriculums," *Proceedings of the 2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017), Accessible at: https://peer.asee.org/27787
4. U. Adhikari[1], **J. Mitchell**, M. Weir, and J. Libarkin. "Measuring the success of an educational program through box-and-arrow diagram: A case study of the Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute," *Proceedings of the 2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017), Accessible at: https://peer.asee.org/28659
5. E. Esfahanian[1], K. Dolan, **J. Mitchell**. "Construction of a microbial kinetic model to capture *Staphylococcus* growth and decay on skin," *9th International Conference on Inverse Problems in Engineering*, Waterloo, Ontario, Canada. (May 23-26, 2017)
6. **J. Mitchell,** M. Weir, W. van Osch and J. Rose. 2014 "The QMRA Wiki: A Social Media Tool for Interdisciplinary and Interagency Collaboration for Quantitative Microbial Risk Assessment," In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), *Proceedings of the 7th International Congress on Environmental Modelling and Software*, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2
7. B. Murali [1] and **J. Mitchell.** 2014. "The Effect of Recovery on Modeling Inactivation of Bacillus Spores on HVAC Filters," In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), *Proceedings of the 7th International Congress on Environmental Modelling and Software*, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2
8. **J. Mitchell-Blackwood**, M. Figueroa, C. Kokar, E. Fromm and A. Fontecchio. 2010. "Tracking Middle School Perceptions of Engineering During an Inquiry Based Engineering Science and Design Curriculum," *Proceeding of the 2010 ASEE Annual Conference and Exposition*, Louisville, KY, (June 20-23, 2010), Accessible at: https://peer.asee.org/15965

9. **J. M. Blackwood**, P. L. Gurian, A. Kumar, and M. Sarich. 2007. "Iron-Oxide Coated Polypropylene Fibers in Column Treatment," *Proceedings of the AWWA Annual Conference and Exposition*, Toronto, Ontario, Canada

PEER-REVIEWED BOOK CHAPTERS (2)

1. **J. Mitchell** and S. Akram. 2017. "Pathogen Specific Persistence Modeling Data." In: J.B. Rose and B. Jiménez-Cisneros, (eds) *Global Water Pathogens Project, http://www.waterpathogens.org (M. Yates (eds) Part 4 Management of Risk from Excreta and Wastewater)* Accessible at: http://www.waterpathogens.org/book/pathogen-specific-persistence-modeling-data. Michigan State University, E. Lansing, MI, UNESCO.
2. D. T. Chang, M. Goldsmith, C. M. Grulke, P. P. Egeghy, Y. Tan, **J. Mitchell-Blackwood**. 2014. "Data mining and informatics-based approaches for new and emerging environmental contaminants" In: *Yearbook of Science and Technology*, McGraw-Hill Professional, New York, NY. ISBN: 978-07-183106-2

OTHER PEER-REVIEWED WRITINGS (1)

1. **J. Mitchell-Blackwood**, 2010. "Are You Really Better Off?," Teach Engineering Digital Library, http://teachengineering.com/view_activity.php?url=http://www.teachengineering.org/collection/drx_/activities/drx_betteroff/drx_betteroff_activity8.xml

FEDERAL REPORTS (4)

1. Goldsmith, Rocky, Tan, C., Chang, D. Grulke, D., Tornero-Velez, R., Vallero, D., Dary, Johnson, C.J., Egeghy, D, **Mitchell-Blackwood, J**., Holm, K., Reich, M., Edwards, R. and Phillips, L. 2013. "Summary *Report for Personal Chemical Exposure Informatics: Visualization and Exploratory Research in Simulations and Systems (PerCEIVERS)*," U.S. Environmental Protection Agency, Washington, DC, EPA/600/R13/041 (NTIS PB2013-108926)
2. **J. Mitchell-Blackwood**. 2010. "Dose-Response Comparisons: Bayesian Statistics," *U.S. EPA Workshop Report: State-of-the-Science for the Determination and Application of Dose-Response Relationships in Microbial Risk Assessment*, Centers for Disease Control and Prevention, Atlanta, GA, EPA/600/R-10/02
3. B. Thran, R. Lee, **J. Mitchell-Blackwood** and P. L. Gurian. 2010. "Technical Guide 316 Supplement C2: Dose–Response Assessment for Inhalation Anthrax in Guinea Pigs Using Historical Army Data and Classical and Bayesian Statistical Methods," *Limited Distribution through the U.S. Army Public Health Command, Environmental Health Risk Assessment Program (MCHB-TS-REH), Aberdeen Proving Ground, Maryland*
4. **J. Mitchell-Blackwood** and P. L. Gurian. 2008. "Development of Dose-Response Curves for *Bacillus anthracis* (Inhalation Anthrax) Using a Bayesian Approach on Historic Data," White Paper Submitted in Support of the Physiologic Assessment of Microbial Effects (PhAME) Project, *Limited Distribution through the U.S. Army Public Health Command, Environmental Health Risk Assessment Program (MCHB-TS-REH), Aberdeen Proving Ground, Maryland*

PRESENTATIONS (81)

International and Invited Lectures (3)

Several lectures over the duration of invited participation in short courses focused on various aspects of human health risk assessment including quantitative analysis of data, modeling, uncertainty analysis, risk perception, risk communication and risk management

1. Quantitative Microbial Risk Assessment Training and Research Workshop, *Griffith University, Smart Water Research Centre*, Southport QLD, Australia, March 2016
2. International Perspectives on Quantitative Microbial Risk Assessment, *Indian Institute of Public Health*, Hyderabad, India, March 2015
3. QMRA Innovation Institute, *University of Sao Paulo*, Sao Paulo, Brazil, July 2013

National and Regional Invited Lectures (4)

4. "Antimicrobial Resistance and Risk," Microbiology of the Built Environment: Implications for Health and Design. *NCSE 2017: Integrating Environment and Health*, 17th National Conference and Global Forum for Science, Policy, and the Environment, Washington, DC, January 24-26, 2017
5. "Potency of Opportunistic Pathogens in Water Systems," *Society for Risk Analysis (SRA) Dose-Response Specialty Group Webinar*, (presented via internet), July 5, 2016
6. "Legionella –Legacy Threat and New Risk for Safe Drinking Water," *Michigan Section of the American Water Works Association (AWWA)*, 2016 Fall Regional Meeting, Mt. Pleasant, MI, October 18, 2016
7. "Approaches for Rapid Exposure-Based Prioritization of Environmental Chemicals," *Society for Risk Analysis Exposure Assessment Specialty Group Webinar* (presented via internet), June 2011

Local Invited Talks and Lectures (6)

8. "Water Wars: Our H2O Futures," *Michigan State University, Honors College, Sharper Focus, Wider Lenses*, East Lansing, MI, September 25, 2017 (Podcasts and YouTube video links of Live Stream Accessible at: https://honorscollege.msu.edu/programs/sharper-focus-wider-lens.html)
9. "Measuring the Potential Impacts of the Unintentional Consequences," *Michigan State University, Center for Ingredient Safety Annual Meeting*, East Lansing, MI, October 4-6, 2016
10. "Application of Quantitative Microbial Risk Assessment (QMRA) to Emerging Areas in Agriculture," *Michigan State University, Department of Plant, Soils and Microbial Sciences, Seminar Series*, East Lansing, MI, February 18, 2016
11. "Cross-Institute Capacity Building for Water Management," Panel Speaker, *2015 Fall MSU Extension Conference*, Active and Engaged Learning, and Shiawassee Water Tour, October 13, 2015
12. "Pharmaceuticals and Personal Care Products in the Environment - do we care?" 63rd Michigan Onsite Wastewater Conference, East Lansing, MI, January 7-9, 2014
13. Lectures in data analysis in MS Excel, risk communication, risk perception, and risk management for the *Center for Advancing Microbial Risk Assessment Summer Institute*, East Lansing, MI, August 2011

Conference Talks (41)

14. M. Weir, A. Mraz and **J. Mitchell**. "An Advanced Legionellosis Risk Model Incorporating Epidemiological Evidence of Disease Burden," *Society for Risk Analysis 2017 Annual Meeting*, Arlington, VA (December 10-13, 2017)
15. **J. Mitchell**, K. Dean, S. Tamrakar, Y. Huang and J. Rose. "Opportunistic pathogen dose-response models," *Society for Risk Analysis 2017 Annual Meeting*, Arlington, VA (December 10-13, 2017)
16. A. Whelton, M. Salehi, M. Abouali, M. Wang, Z. Zhou, A.P. Nejadhashemi, **J. Mitchell** and S. Caskey. "Water Chemistry and Micriology Changes as Plumbing Ages," *Society for Risk Analysis 2017 Annual Meeting*, Arlington, VA (December 10-13, 2017)
17. B. Feighner and **J. Mitchell**. "Discussion of Lessons Learned from Flint about Risk Assumptions in the Lead and Copper Rule," *Society for Risk Analysis 2017 Annual Meeting*, Arlington, VA (December 10-13, 2017)
18. J. Carrera, **J. Mitchell,** and L. Radonic. "Community Based Participatory Research and Citizen Science for Community Organizing around Water Quality and Water Shutoffs," *2017 American Sociological Association Annual Meeting/Water & Inequality Panel/Environment & Technology*, Montreal, QC Canada (August 12-15, 2017)
19. **J. Mitchell**, M. Weir, J. Rose, and J. Libarkin. "The Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRAIII) – A Platform for Cross Disciplinary Training of Engineers with Social and Biological Scientists to Address Public Health Issues," *2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017)

20. M. Weir, **J. Mitchell**, A. Mraz, and J. Rose. "QMRA Wiki: An educational tool for interdisciplinary teaching of risk modeling in engineering curriculums," *2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017)
21. U. Adhikari, **J. Mitchell**, M. Weir, and J. Libarkin. "Measuring the success of an educational program through box-and-arrow diagram: A case study of the Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute," *2017 American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Columbus, OH (June 25-28, 2017)
22. S. Akram, X. Guo, R. Stedfel, M. Johnson, A. Chabrelie and **J. Mitchell.** "Linking antibiotic usage to proliferation of antimicrobial resistance in the environment: A cases study of a MI dairy farm," *Association of Environmental Engineers and Science Professors (AEESP) Education and Research Conference*, Ann Arbor, MI (June 20-22, 2017)
23. S. Akram, Y. Kim, and **J. Mitchell**. "A meta-analysis for estimating the persistence of HF183 marker in environmental waters," *2017 International Water Association (IWA) Health Related Water Microbiology Conference*, Chapel Hill, NC (May 15-19, 2017)
24. E .Esfahanian, K. Dolan, and **J. Mitchell**. "Construction of a microbial kinetic model to capture *Staphylococcus* growth and decay on skin," *9th International Conference on Inverse Problems in Engineering*, Waterloo, Ontario, Canada (May 23-26, 2017)
25. **J. Mitchell**, J. Rose, and D. Donahue. "Expert Evaluation of the Water Crisis in Flint, Michigan," *Society for Risk Analysis 2016 Annual Meeting*, San Diego, CA (Dec. 11-15, 2016)
26. **J. Mitchell** and V. Misra. "Selection of Surrogates for Biological Agents with Long-Term Environmental Persistence." *Society for Risk Analysis 2015 Annual Meeting*, Arlington, VA (Dec. 6 – 10, 2015)
27. M. Weir and **J. Mitchell**.***** "Viz-DR: A Microbial Dose Response Visualization and Optimization Tool for QMRA Students and Novices," *Society for Risk Analysis 2015 Annual Meeting*, Arlington, VA (Dec. 6 – 10, 2015) *Presenter
28. **J. Mitchell**. "Understanding the Challenge of Antibiotic Resistant Risks," *Society for Risk Analysis World Congress on Risk 2015*, Singapore (July 19-23, 2015)
29. C. Gibbs, L. Rivers; T. Dempsey, and **J. Mitchell**. "The Use of Data in Environmental Enforcement: A Case Study," *2015 71st Annual Meeting of the American Society of Criminology*, Washington, DC (Nov. 18 – 21, 2015)
30. B. Murali and **J. Mitchell**. "Modeling the Persistence of Microbes with Long-Term Survivability in the Environment," *ASABE Annual International Meeting*, Montreal, Quebec, Canada (July 2014)
31. M. Gammans,† **J. Mitchell**. C. Gibbs, and L. Rivers. "Environmental Enforcement: Toward Proactive Fraud Detection," *ESPP Graduate Research Symposium*, Michigan State University, East Lansing, MI (November 22, 2013) (Oral Presentation) †1st Place Student Presentation Winner
32. K.S. Enger, B. Murali, D. Birdsell, P. Gurian, D. M. Wagner, **J. Mitchell**. "Evaluating long term Inactivation of bacillus spores on common Surfaces," *Society for Risk Analysis 2013 Annual Meeting*, Baltimore , MD, (December 8-11, 2013) (Peer Reviewed Abstract)
33. **J. Mitchell-Blackwood.** "In silico ADME and PBPK inspired dose prioritization: screening and visualization models" *Society of Toxicology, Contemporary Concepts in Toxicology (CCT) Meeting*- "Building for Better Decisions: Multi-Scale Integration of Human Health and Environmental Data." US EPA, Research Triangle Park, North Carolina (May 8–11, 2012)
34. **J. Mitchell-Blackwood.** "From Decision Analytics for Exposure Prioritization to dietary residue exposures," *Professional Meeting: PerCEIVERS: Personal Chemical Exposure Informatics: visualization, user Experience, Research in Systems modeling and Simulations Workshop*, U.S. EPA, Research Triangle Park, NC (June 26–27, 2012)
35. **J. Mitchell-Blackwood.** "The Development of High-Throughput Exposure Techniques for Prioritizing Chemical Risks," *Society for Risk Analysis 2011 Annual Meeting*, Charleston, SC (December 2011)
36. **J. Mitchell-Blackwood,** P. Egeghy, and D. Vallero. "Challenging Exposure Prioritization Approaches," *Society for Risk Analysis 2011 Annual Meeting*, Charleston, SC (December 2011)

37. H. Özkaynak, P. Egeghy, and **J. Mitchell-Blackwood.** "From SHEDS to SHEDS-lite: development of an efficient human exposure model," *Society for Risk Analysis 2011 Annual Meeting*, Charleston, SC (December 2011)
38. D. Wang, Z. Collier, **J. Mitchell-Blackwood**, J. Keisler, and I. Linkov. "Using Multicriteria Decision Analysis (MCDA) to Prioritize the Exposure Potential of Existing and Emerging Chemicals," *Society for Risk Analysis 2011 Annual Meeting*, Charleston, SC (December 2011)
39. **J. Mitchell-Blackwood**, S. Isukapalli, P. Georgopoulos and D. Vallero. "Application of Sensitivity and Uncertainty Analysis in Chemical Prioritization," *International Society of Exposure Science (ISES) 2011 Annual Meeting*, Baltimore, MD (October 2011)
40. H. Ozkaynak, **J. Mitchell-Blackwood** and D. Vallero. "Rapid Exposure Screening and Prioritization sing SHEDS and EFAST2," *International Society of Exposure Science (ISES) 2011 Annual Meeting*, Baltimore, MD (October 2011)
41. **J. Mitchell-Blackwood** and D. Vallero. "Lessons Learned from the Exposure Based Prioritization Challenge," *Exposure-Based Chemical Prioritization Workshop II: Extending Capabilities for High-Throughput Assessment*, U.S. EPA, Research Triangle Park, NC (September 2011)
42. **J. Mitchell-Blackwood,** P. Egeghy, and D. Vallero. "Bridging the Capabilities of Existing Human Exposure Models with Current Needs," *2011 Association of Environmental Engineers and Science Professors (AEESP) Education and Research Conference*, Tampa, FL (July 2011)
43. **J. Mitchell-Blackwood** and P.L. Gurian. "Bayesian model comparison of dose-response models for biological agents," *Society for Risk Analysis 2010 Annual Meeting*, Salt Lake City, UT (December 2010)
44. V. Corella-Barud, S. Flores, H. Galada, J. Graham, P. Gurian, **J. Mitchell-Blackwood**, T. Montoya, C.O'Donnell, F. Perez, and G. Velazquez. "Risk Management: Thinking and Doing," invited presentation to *Environmental Science and Engineering Doctoral Program, University of Texas at El Paso* (via internet) (April 2010) *Invited*
45. P. Gurian, T. Hong, **J. Mitchell-Blackwood**, I. Solon, C. Haas, N. D. Ward, Y. Huang, C. O'Donnell, and H. Perez. "Responding to Bioterrorism: From Risk Assessment to Risk Management," *The Fourth Annual DHS University Network Summit*, Washington, DC (March 2010) *Invited*
46. **J. Mitchell-Blackwood** and P. L. Gurian. "Dose Response Method Comparisons: Bayesian Statistics," *EPA/CDC Workshop on State-of-the-Science for the Determination and Application of Dose-Response Relationships in Microbial Risk Assessment*, Atlanta, GA (April 2009) *Invited*
47. **J. Mitchell-Blackwood**, P. L. Gurian, and C. O'Donnell. "An Evaluation of the Risk Threshold for Prophylaxis and Treatment After an Anthrax Release," *Drexel Engineering Research Symposium, Drexel University*, Philadelphia, PA (March 2009)
48. **J. Mitchell-Blackwood**, P. L. Gurian, and C. O'Donnell. "An Evaluation of the Risk Threshold for Prophylaxis and Treatment After an Anthrax Release," *The Third Annual DHS University Network Summit and Student Day*, Washington, D.C., (March 2009) *Invited*
49. **J. Mitchell-Blackwood**, P. L. Gurian, and C. O'Donnell. "An Evaluation of the Risk Threshold for Prophylaxis and Treatment After an Anthrax Release," *Society for Risk Analysis 2008 Annual Meeting*, Boston, MA (December 2008)
50. **J. Mitchell-Blackwood**, T. Hong, N. D. Ward and P. L. Gurian. "Relating Human Health Risk to Environmental Concentrations of *B. anthracis* Using Analytic Models," *11th Annual Force Health Protection Conference of the U. S. Army Center for Health Promotion and Preventative Medicine (USACHPPM)*, Albuquerque, NM (August 2008)
51. **J. Mitchell-Blackwood**, P. L. Gurian, and M. H. Weir. "A Hierarchical Model for Probabilistic Dose-Response Assessment of *Bacillus anthracis*," *The Second Annual DHS University Network Summit and Student Day*, Washington, D.C. (March 2008)
52. **J. Mitchell-Blackwood**, P. L. Gurian, and M. H. Weir. "A Bayesian statistical modeling approach for Bacillus anthracis," *Society for Risk Analysis 2007Annual Meeting*, San Antonio, TX (December 2007)

53. **J. Mitchell-Blackwood** and P. L. Gurian. "Performance of Polypropylene Geosynthetic Filters Under Pressurized Hydraulic Flow Conditions: Headloss and Iron Oxide Coating Retention," *Drexel Engineering Research Symposium, Drexel University*, Philadelphia, PA (April 2007).
54. A. Kumar, P. L. Gurian, R. H. Bucciarelli-Tieger, and **J. Mitchell-Blackwood**. "Iron-Oxide-Coated Fibrous Sorbents for Arsenic Removal," *Drexel Engineering Research Symposium, Drexel University*, Philadelphia, PA (April 2007)

Conference Posters (27)

55. A. Chabrelie,† L. Zhang, G. Bornhorst and **J. Mitchell**. "Horizontal Gene Transfer Under Dynamic System Conditions for Understanding Dose-Response Relationships for Antibiotic Resistance Risks," *Society for Risk Analysis 2017 Annual Meeting*, Arlington, VA (December 10-14, 2017) †Student Merit Award Winner, Dose Response Specialty Group
56. A. Chabrelie, **J. Mitchell**, and B. Norby. **"**A Quantitative Multi-criteria Decision Analysis (MCDA) Approach to Exposure-based Antimicrobial Product Prioritization," *4th International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR)*, East Lansing, MI, USA. (August 13-17, 2017)
57. S. Akram and **J. Mitchell**. "Proliferation of antimicrobial resistance in manure, soil and water in a Michigan dairy farm," *4th International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR)*, East Lansing, MI, USA. (August 13-17, 2017)
58. A. Chabrelie, **J. Mitchell**, and B. Norby. "A Quantitative Multi-criteria Decision Analysis (MCDA) Approach to Exposure-based Antimicrobial Product Prioritization," *Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference*, (June 20-22, 2017)
59. S. Akram, Y. Kim and **J. Mitchell**. "Evaluating Pathogen Specific Persistence in Environmental Media: A Meta-Analysis," *Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference*, (June 20-22, 2017) (abstract accepted)
60. *A. Chabrelie*,† **J. Mitchell**, and B. Norby. "A Quantitative Multi-criteria Decision Analysis (MCDA) Approach to Exposure-based Antimicrobial Product Prioritization," *MSU Engineering Graduate Research Symposium*, East Lansing, MI (March 30, 2017) †3rd Place Student Presentation Winner
61. M. Abouali, **J. Mitchell**,***** P. Nejadhashemi, P. Hatami, C. Gibbs, and L. Rivers. "Developing a Predictive Model to Detect Mishandling in the Self-reported Water Discharge Data," *Society for Risk Analysis 2016 Annual Meeting*, San Diego, CA (Dec. 11-15, 2016) *Presented
62. A. Chabrelie, **J. Mitchell**, and B. Norby. "An Exposure Based Multi-Criteria Decision Analysis (MCDA) Approach for the Risk Prioritization of Antibiotic Products." *Society for Risk Analysis 2016 Annual Meeting*, San Diego, CA (Dec. 11-15, 2016)
63. P. Hatami, **J. Mitchell**, C. Gibbs, L. Rivers. "Application of Benford's Law in the development of Data Driven Decision Support for Environmental Enforcement," *Society for Risk Analysis 2015 Annual Meeting*, Arlington, VA (Dec. 6 – 10, 2015)
64. A. Chabrelie, **J. Mitchell**, J. Rose, D. Charbonneau, and Y. Ishida. "Evaluation of the Influenza Risk Reduction from Antimicrobial Spray," *Society for Risk Analysis 2015 Annual Meeting*, Arlington, VA (Dec. 6 – 10, 2015)
65. P. Hatami, **J. Mitchell**, C. Gibbs, L. Rivers. "Assessment of Reliability of Mishandling in Wastewater Treatment Plants Reported Discharge Data Detected by Benford's Law," *MSU Environmental Science and Public Policy Research Symposium 2015: International Research Collaborations - Addressing Environmental Challenges*, East Lansing, MI (October 23, 2015)
66. P. Hatami, **J. Mitchell**, C. Gibbs, L. Rivers, and T. Dempsey. "Assessment of the Applicability of Benford's Law to Detection of Data Mishandling in Wastewater Treatment Plant Self-reported Discharge Data," *MSU Engineering Graduate Research Symposium*, East Lansing, MI (April 9, 2015)

67. P. Hatami, **J. Mitchell**, C. Gibbs, L. Rivers, and T. Dempsey. "Assessment of Applicability of Benford's Law to Detection of Mishandling in Self-reported Discharge Data of Wastewater Treatment Plant," *MSU Environmental Science and Public Policy 2015 Fate of the Earth Symposium*, East Lansing, MI (April, 2015)
68. C. Gibbs, L. Rivers, T. Dempsey, **J. Mitchell**. "Unpacking the Black Box: A Case Study of Environmental Enforcement," *70th Annual Meeting of the American Society of Criminology*, San Francisco, CA **(**November 19 - 22, 2014**)**
69. B. Murali, and **J. Mitchell**. "Modeling the Recovery of *Bacillus* Spores from HVAC Filters," *MSU Sixth Annual Graduate Academic Conference*, East Lansing, MI (March 27, 2014)
70. B. Murali, and **J. Mitchell**. "Recovery of *Bacillus anthracis* Spores from HVAC Filters Using Two Quantification Techniques," *MSU Engineering Graduate Research Symposium*, East Lansing, MI (March 27, 2014)
71. D. Vallero, P. Egeghy, T. Buckley, J. Wambaugh, K. Isaacs, R. Goldsmith, H. Özkaynak, **J. Mitchell.** "Mapping ExpoCast onto ToxCast," *Environment and Health | Conference of ISEE, ISES and ISIAQ 2013 Conference Environment and Health* – Bridging South, North, East and West, Congress Center Basel, Switzerland (August 20-23 2013)
72. M. Gammans and **J. Mitchell.** "Data-Driven Solutions to Environmental Monitoring," *Engineering Summer Undergraduate Research Experience (ENSURE) Symposium*, Michigan State University, East Lansing, MI (July 24, 2013)
73. E. Blackowicz, A. Bruce and **J. Mitchell.** "The Recovery and Persistence of Various Forms of Bacillus Spores from HVAC Filters," *Engineering Summer Undergraduate Research Experience (ENSURE) Symposium*, Michigan State University, East Lansing, MI (July 24, 2013)
74. **J. Mitchell**, S. Gunawardena, K. Enger, C. Wendt, W. Van Osch, J. Rose. "Interdisciplinary Learning Using the Quantitative Microbial Risk Assessment (QMRA) Wiki," *Association of Environmental Engineering and Science Professors (AEESP) 2013 50th Anniversary Conference*, Golden, CO (July 14-16, 2013)
75. **J. Mitchell-Blackwood**, J. Fitzpatrick, J. Atchison, V. Binetti, M. Figueroa, B. Pelleg, E. Fromm, and A. Fontecchio. "GK-12: A Summary of Authentic Assessment Methods," *National Science Foundation (NSF) Graduate STEM Fellows in K-12 Education Annual Conference*, National Science Foundation, Arlington, VA (March 2010)
76. **J. Mitchell-Blackwood**. "Developing Predictive Models for Addressing Uncertainty in Dose-Response of Pathogenic Agents," *National Science Foundation (NSF) Graduate STEM Fellows in K-12 Education Annual Conference*, National Science Foundation, Arlington, VA (March 2010)
77. **J. Mitchell-Blackwood**, P. L. Gurian, and the Physiological Assessment of Microbial Effects (PhAME) Workgroup: B. Thran, S. Taft, R. Lee, and S. Hines. "Development of Dose-Response Curves for *Bacillus anthracis* Using a Bayesian Approach on Historic Data," *Annual Meeting of the Society for Risk Analysis*, Baltimore, MD (December 2009)
78. **J. Mitchell-Blackwood** and P. L.Gurian. "Headloss In Iron-Oxide Coated Polypropylene Geosynthetic Fibrous Filters," *2008 American Filtration & Separations Society (AFS) Annual Conference*, King of Prussia, PA (May 2008)
79. **J. Mitchell-Blackwood** and P. L. Gurian. "An Evaluation of the Risk Threshold for Prophylaxis and Treatment After An Anthrax Release," *Drexel University Tenth Annual Research, Innovation, Scholarship and Creativity Day 2008*, Philadelphia, PA (April 2008)
80. **J. Mitchell-Blackwood**, P.L. Gurian and M. H.Weir. "Bayesian Hierarchical Modeling to Estimate Interspecies Dose-Response Safety Factors," *The Joint U.S. Environmental Protection Agency and Department of Homeland Security Conference on Real-World Applications and Solutions for Microbial Risk Assessment*, Bethesda, MD (April 2008)
81. **J. M. Blackwood**, P. L. Gurian and M. H. Weir. "A Bayesian Statistical Modeling Approach for *Bacillus anthracis* Dose Response Data," *Drexel University Ninth Annual Research, Innovation, Scholarship and Creativity Day 2007*, Philadelphia, PA (April 2007)

TEACHING EXPERIENCE

CREDIT INSTRUCTION

Biosystems Engineering, Michigan State University

Semester/Year	Course	Course Title	Credits	Description
Spring 2013	BE 385	Engineering Design and Optimization	3	Undergraduate – Core junior level introduction to design, project management, engineering economics, linear programming
Fall 2013	BE 891	Advanced Topic in Biosystems Engineering: Human and Environmental Risk Analysis	3	Graduate – risk assessment and modeling course for chemical and biological hazards in multimedia environments; risk management – cost-benefit and decision analysis. (Developed as a new course)
Fall 2013	ESP 803	Human and Ecological Health Assessment and Management	3	Graduate – risk assessment and modeling course for chemical and biological hazards; Team taught- 50%
Spring 2014	BE 385	Engineering Design and Optimization	3	Engineering Design and Optimization (Spring 2013, Spring 2014, Spring 2015). Undergraduate – Core junior level introduction to design, project management, engineering economics, linear programming
Fall 2014	BE 491	Special Topic in Biosystems Engineering: Engineering Innovation and Design for Global Health Risk	3	Undergraduate – senior level introduction to microbial risk analysis for the design of systems to mitigate infectious disease risk; Team taught - 33% (Developed as a new course)
Spring 2015	BE 385	Engineering Design and Optimization	3	Undergraduate – Core junior level introduction to design, project management, engineering economics, linear programming
Summer 2015	BE 891	Advanced Topic in Biosystems Engineering: Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRA III)	3	Short course lectures and labs on statistical modeling in microbial risk assessment. Developed curriculum, instructional materials and assessments. Work with multidisciplinary teams to conduct research case studies. (Developed as a new course)
Fall 2015	BE 491	Special Topic in Biosystems Engineering: Engineering Innovation and Design for Global Health Risk	3	Undergraduate – senior level introduction to microbial risk analysis for the design of systems to mitigate infectious disease risk; Team taught - 66% (Developed as a new course)
Spring 2016.	BE 890	Independent Study	3	Graduate – Risk assessment modeling to characterize global health risk associated with water contaminated with viruses from raw sewage
Summer 2016	BE 891	Advanced Topic in Biosystems Engineering: Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRA III)	3	Short course lectures and labs on statistical modeling in microbial risk assessment. Developed curriculum, instructional materials and assessments. Work with multidisciplinary teams to conduct research case studies.

Continued on next page

Semester/Year	Course	Course Title	Credits	Description
Fall 2016	BE 449	Human Health Risk Analysis for Engineering Controls	3	Undergraduate – Senior Design Elective, Biomedical Engineering Concentration requirement, quantitative microbial risk assessment (QMRA), risk management and development of design criteria and controls. (Developed as a new course).
Fall 2017	BE 449	Human Health Risk Analysis for Engineering Controls	3	Undergraduate – Senior Design Elective, Biomedical Engineering Concentration requirement, quantitative microbial risk assessment (QMRA), risk management and development of design criteria and controls.

Civil, Architectural, and Environmental Engineering, Drexel University

- Teaching assistant for undergraduate courses: Introduction to Environmental Measurements, Engineering Economics, Groundwater Hydrology, Introduction to Environmental Engineering, Introduction to Infrastructure

NON-CREDIT INSTRUCTION

Quantitative Microbial Risk Assessment Interdisciplinary Instructional Institute (QMRA III)
Oversee the coordination and administration of all aspects of the QMRA III short course for interdisciplinary scholars from multiple disciplinary backgrounds. Develop curriculum, instructional materials and assessments. Work with multidisciplinary teams to conduct research case studies. Approx. 30 students per year

- July 2015 at Michigan State University, East Lansing, MI
- August 2016 at Michigan State University, East Lansing, MI
- August 2017 at University of Washington, Seattle, WA

ADVISING

Primary Advisor (5)

1. Kara Dean (MS Biosystems Engineering). Topic: Assessing Risks Associated with Opportunistic Pathogens in Drinking Water Systems Under Low Flow Conditions, expected graduation Spring 2019
2. Alexandre Chabrelie (PhD Biosystems Engineering). Topic: Development of a Modeling Framework for Antibiotic Resistance Risk Assessment, expected graduation Summer 2018
3. Pouyan Hatami (MS Biosystems Engineering). "Applicability of data driven methods for assessing compliance of wastewater treatment plants self-reported datasets ," graduated December 2016
4. Elaheh Esfahanian (PhD Biosystems Engineering). "Development of a meteorological, agricultural, stream health, and hydrological (MASH) comprehensive drought index," graduated May 2016
5. Bharathi Murali (MS Biosystems Engineering). "Comparison of the recovery of *Bacillus anthracis* and *Bacillus thuringiensis* spores from porous media: Considering time and moisture content," graduated December 2014

Other Research Advisor (1)

1. Kaitlyn Casulli (graduate student in Biosystems Engineering).Topic: Dietary exposure modeling for cholesterol oxidation products, bridge project 2017-2018

Thesis / Dissertation Committees (6)

1. Leann Matta (PhD Biosystems Engineering). Topic: Development of Biosensors to Detect Pathogens and Spoilage in Beverages for Food Safety
2. Khang Huynh (PhD Biosystems Engineering). Topic: Uptake and Phytometabolism of Organic Pollutants by Crop Plants (including risk assessment associated with metabolites)

3. Chelsea Weiskerger (PhD Civil and Environmental Engineering). Topic: Assessing Hydrogeological Factors and Risk Associated with *E. coli* contamination of Chicago beaches
4. Kevin Sebastian (MS Packaging) Topic: Modeling and Assessing Environmental Impact of Food Waste
5. Francisco Garcesvega (PhD Biosystems Engineering). "Quantifying Water Effects on Thermal Inactivation of Salmonella in Low-Moisture Foods ," graduated May 2017
6. Valerie Novaes (MS Biosystems Engineering). "Assessing the impacts of post-construction best management practices on stormwater runoff in an ultra-urban environment ," graduated May 2015

Post-Doctoral Mentees

Dr. Sina Akram (2016 – 2017), Dr. Umesh Adhikari (2016–2017), Dr. Yiseul Kim (2015-2016)
Dr. Amanda Herzog (2014-2015), Dr. Kyle Enger (2012-2013), Dr. Elaheh Esfahanian (2016)

Undergraduate Research Mentees (14)

	Student	**Major**	**Institution**	**Period**
1.	Jack Salerno	Biosystems Engineering	MSU	Fall 2017-present
2.	Esha Jain	Biosystems Engineering	MSU	Fall 2017-present
3.	Emily Willis	Biosystems Engineering	MSU	Summer 2016-present
4.	Judah Pemble	Mathematics	LCC	Summer 2017
5.	Yara Fakhoury	Biosystems Engineering	MSU	Spring 2016 – Spring 2017
6.	Shane Peterson	Biosystems Engineering	MSU	Spring 2016
7.	Viswarup Misra	Biological Sciences & Bioengineering	IIT Kanpur, India	Summer 2015
8.	Austin Wissler	Biosystems Engineering	MSU	Fall 2014 – Spring 2016
9.	Kara Dean	Biosystems Engineering	MSU	Fall 2014 – Summer 2017
10.	Damanpreet Singh	Computer Science	MSU	Fall 2014 – Spring 2015
11.	Eric Blackowicz	Biomedical Laboratory Science	MSU	Summer 2013
12.	Matthew Gammans	Biosystems Engineering	MSU	Spring 2013 -Spring 2014
13.	Andrew Bruce	Environmental Microbiology	MSU	Fall 2012 - Spring 2013
14.	Alexa Jones	Biosystems Engineering	MSU	Fall 2012 - Spring 2013

PROFESSIONAL SERVICE (postgraduate only)

As a Reviewer or Editor

2014-present Editorial Board, Microbial Risk Analysis, Elsevier ISSN: 2352-3522
2014-present Editorial Board, Global Water Pathogens Project (waterpathogens.org)
2012-present Editor for Risk Management and Developer of the QMRA Wiki (qmrawiki.canr.msu.edu)
2013 Proposal Reviewer for the U. S. EPA STAR Grants
Ongoing Ad-hoc Journal Referee for *Risk Analysis, Environmental Science and Technology, Water Quality, Exposure and Health, Science of the Total Environment, International Journal of Molecular Sciences*

National Disciplinary Service

2017 Symposium Co-Chair ,"Understanding Antimicrobial Resistance as a Global Concern, " Society for Risk Analysis Annual Meeting, (December 10-13, 2017)

2017	Symposium Chair and Organizer, "An Interdisciplinary Analysis of Multiple Risks and Lessons Learned from Flint, Michigan", Society for Risk Analysis Annual Meeting, (December 10-13, 2017)
2017	Session Chair, "Assessment, mitigation, stewardship; human impact", 4th International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), East Lansing, MI, USA. (August 13-17, 2017)
2017	Local Organizing Committee, Quantitative risk assessment, 4th International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR), East Lansing, MI, USA. (August 13-17, 2017)
2016-present	Executive Board, Secretary, Microbial Risk Analysis Specialty Group, Society for Risk Analysis (SRA). *Elected*
2014-present	Government Affairs Committee, Social Media Reporter, Association of Environmental Engineering and Science Professors (AEESP)
2014-2015	Advisor to U.S. Navy Regional Center, Singapore on safe drinking water QMRA, (with Engineering Concepts, Inc. Honolulu, Hawaii)
2015	Reviewer, AEESP Navigating the Job Search Workshop
2014	Co-Facilitated and Lectured - "An Introduction to Quantitative Microbial Risk Assessment (QMRA) for the Risk Professional" 2014 Society for Risk Analysis (SRA) Annual Meeting, Continuing Education Workshops, Dec. 7, 2014
2011	Symposium Chair and Organizer, "The Development of High Throughput Exposure Techniques for Prioritizing Chemical Risks", Society for Risk Analysis Annual Meeting
2011	Symposium Chair, International Society of Exposure Science

Regional and Local Disciplinary Service

2014	Scientific Committee of the ESPP 2nd Annual Research Symposium – Environmental Risk and Decision Making, October 10, 2014
2013	Scientific Committee of the 2013 Inaugural ESPP Research Symposium –- Water Quality and Health, November 22, 2013
2014	Poster judge for the Engineering Graduate Research Symposium, March 27, 2014
2013	Co-Facilitator, QMRA Workshop for Local and Regional Environmental Officials, Chicago, IL, February 21, 2013

University Service

2016	MSU Representative to North Central Region Antibiotic Resistance Roundtable, Ohio State University, May 19-20, 2016
2016	Global Impact Initiative Antimicrobial Resistance Steering Committee (Jan. 2016 – present)
2015-2016	Organizing Committee Member of the MSU Environmental Science and Public Policy (ESPP) Research Symposium on Environmental Health
2015-2017	University Strategic Partnership Grant Program (SPG) Environmental Studies and Energy Review Panel Member

College Service

2018-present	College of Agriculture and Natural Resources – Teaching Awards Selection Committee
2015-present	College of Agriculture and Natural Resources – Teaching and Academic Policy Committee
2015	College of Agriculture and Natural Resources – Evaluation of Faculty Mentoring Committee
2013-present	College of Engineering - Diversity Committee

Department Service

2015	Dept. of Biosystems and Agricultural Engineering - Academics Committee (Fall 2015)
2015-2016	Dept. of Biosystems and Agricultural Engineering – Food and Health Engineering Search Committee
2013	Dept. of Biosystems and Agricultural Engineering representative at the CoRe and the Women in Engineering Program, September 5, 2013.
2013	Dept. of Biosystems and Agricultural Engineering representative at the Engineering ADS Breakfast, February 8, 2013.

Outreach

2017	A Day with SWE (Society for Women Engineers), Faculty Panel, March 24, 2017
2017	BAE Graduate Student Panel Discussion, February 23, 2017
2016	Instructor, MSU College of Engineering High School Engineering Institute Camp - Biosystems Engineering Session, July 2015, July 2016
2013	Guest Lecturer, Michigan State University Summer Research Opportunities Program (SROP), June 25, 2013
2012	Seminar Presenter, Center for Water Sciences, Michigan State University, Nov. 7, 2012
2011	Guest Lecturer, N.C. State University, Department of Civil, Construction and Environmental Engineering Graduate Student Seminar, Raleigh, NC, November 14, 2011
2011	Guest Lecturer, Citizen Schools Environmental Science Apprenticeship, Lowe's Grove Middle School, Durham, NC, November 1, 2011
2011	Outreach Best Practices Panelist, '*Science is Cool, Take it to School'* Workshop, U.S. EPA, Research Triangle Park, NC, September 20, 2011
2011	Program Guide, US EPA, Research Triangle Park, NC, Take Our Kids to Work Day, May 25, 2011
2011	Volunteer, March Science Madness - Math Event - NC Museum of Life and Science, Durham, NC, March 12, 2011
2010	Guest Lecturer, STEM Career Service Project, Chapel Hill A.K.A. Chapter, Rashkis Elementary School, Chapel Hill, NC, October 30, 2010
2010	Guest Lecturer, Women in Science & Engineering Fall Speaker Series, NC State University, Raleigh, NC, October 21, 2010
2010	Guest Lecturer, GEMS: Girls Empowered by Math & Science Program, Winston-Salem State University, Winston-Salem, NC, October 16, 2010
2009-2010	Team Advisor, Department of the Navy, Office of Naval Research, Greater Philadelphia Sea Perch Challenge – Assisted middle school students design and compete in an underwater robotics competition

PROFESSIONAL AFFILIATIONS

- Society for Risk Analysis, Member (2007 – Present)
- Association of Environmental Engineering and Science Professors: Member (2008-Present)
- American Association for the Advancement of Science (inactive), Student Member (2008-2010)
- International Society of Exposure Science (inactive), Member (2011)

SPECIALIZED TRAINING AND CERTIFICATIONS

- REAL Academy, Michigan State University, April 29, 2016
- Risk Assessment and Risk Management Informed by Computational Toxicology, U.S. EPA, Office of the Science Advisor, Risk Assessment Forum, Research Triangle Park, NC, September 2011
- Computational Systems Biology and Dose-Response Modeling, the Hamner Institutes for Health Sciences, Research Triangle Park, NC, September 2011
- EPA Contract Officer Representative Course, February 2011

- Introduction to Bayesian Analysis using WINBUGS, MRC Biostatistics Unit and Imperial College, Cambridge, England, February 2008
- Registered Engineer In Training in Pennsylvania, 1999

EXPERTISE AND RESEARCH INTERESTS

- Human health risk assessment of chemical and microbial stressors from diverse environmental exposures including food, water, indoor microenvironments and bioterrorism
- Quantitative analysis: Classical and Bayesian statistics; decision science and analysis; systems analysis
- Modeling: microbial dose-response, persistence and exposure modeling including both exogenous and endogenous fate
- Risk management and environmental policy: benefit-cost analysis, risk perception and communication