SHELIE A. MILLER
University of Michigan, School for Environment and Sustainability
1532 Dana Building, 440 Church Street, Ann Arbor, MI 48109-1041
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APPOINTMENTS

2018-	Director, Program in the Environment, University of Michigan
2016-	Jonathan W. Bulkley Collegiate Professor in Sustainable Systems
2021-	Professor, University of Michigan**,** Ann Arbor MI School for Environment and Sustainability & Department of Civil and Environmental Engineering
2016-17	Jefferson Science Fellow, Washington DC National Academies of Sciences, Engineering, and Medicine USAID Global Development Lab, Center for Development Innovation
2013-21	Associate Professor, University of Michigan**,** Ann Arbor MI School for Environment and Sustainability & Department of Civil and Environmental Engineering
2010-13	Assistant Professor, University of Michigan**,** Ann Arbor MI School of Natural Resources and Environment & Department of Civil and Environmental Engineering
2006-10	Assistant Professor, Clemson University, Clemson SC Environmental Engineering and Earth Sciences
2001-06	Doctoral Fellow, Alcoa Inc., Pittsburgh PA Environmental Health and Safety Division

EDUCATION

2006	PhD. Civil and Materials Engineering, University of Illinois at Chicago
2001	M.E. Civil and Environmental Engineering, Clarkson University
2000	B.S. Chemistry, Denison University

HONORS AND AWARDS

2017-	University of Michigan Distinguished Faculty Fellow in Sustainability
2016	Jefferson Science Fellow, National Academies of Sci., Eng., Med.
2013	Kavli Frontiers Fellow, National Academy of Sciences
2009	Presidential Early Career Award for Scientists and Engineers (PECASE), White House Office of Science and Technology Policy
2001-05	National Science Foundation IGERT Fellow

JOURNAL PUBLICATIONS (*denotes advisee)

Miller SA, The capabilities and deficiencies of life cycle assessment to address the plastic problem, *Frontiers in Sustainability*, 2022, 3: 1007060.

Mo W, Hart D, Ashcraft CM, Chester M, Cucurachi S, Lu Z, Miller SA, Integrating knowledge co-production with life cycle assessment, *Resources, Conservation & Recycling*, 2023, 188: 106650.

Knox CB*, Miller SA, Sustainability outcomes of the United States food system: A systematic review, *Journal of Agriculture, Food Systems, and Community Development*, 2022, 11(3): 259-289.

Dong Y*, Miller SA, Keoleian GA, Estimating the greenhouse gas emissions of cold chain infrastructure in China from 2021 to 2060, *Sustainable Production and Consumption*, 2022, 31: 546-556.

Kan M*, Miller SA. Environmental impacts of plastic packaging of food products, *Resources, Conservation & Recycling*, 2022, 180: 106156.

Shuai C, Yu L, Chen X, Zhao B, Qu S, Zhu J, Liu J, Miller SA, Xu M. Principal indicators to monitor Sustainable Development Goals, *Environmental Research Letters*, 2021, 16(12): 1-9

Ravikumar D*, Keoleian G, Miller SA, Sick V. Assessing the relative climate impact of carbon utilization fore concrete, chemical and mineral production, *Environmental Science & Technology*, 2021, 55 (17): 12019-31

Fetner H*, Miller SA, Environmental payback periods of reusable alternatives to single-use plastic kitchenware products, *The International Journal of Life Cycle Assessment*, 2021, 8: 1-17.

Xu M (and 40 collaborators). US-China collaboration is vital to global plans for a healthy environment and sustainable development, *Environmental Science & Technology*, 2021, 55(14): 9622-9626.

Dong Y*, Coleman M*, Miller SA. Greenhouse gas emissions from air conditioning and refrigeration service expansion in developing countries, *Annual Review of Environment and Resources*, 2021, 46: 59-83

Ravikumar D*, Zhang D, Keoleian GA, Miller SA, Sick V, Li V. Carbon dioxide utilization in concrete curing or mixing might not produce a net climate benefit, *Nature Communications*, 2021, 12: 855

Dong Y*, Miller SA. Assessing the lifecycle greenhouse gas (GHG) emissions of perishable food products delivered by the cold chain in China, *Journal of Cleaner Production*, 2021, 303: 126982.

Alfaro JF*, Miller SA. Analysis of electrification strategies for rural renewable electrification in developing countries using agent-based models, *Energy for Sustainable Development*, 2021, 61: 89-103

Miller SA. Response to comment on "Five misperceptions surrounding the environmental impacts of single-use plastic", *Environmental Science & Technology*, 2021, 55(2): 1341-42

Dong Y*, Xu M, Miller SA. Overview of cold chain development in China and methods of studying its environmental impacts, *Environmental Research Communications,* 2020, 2 (12): 122002

Miller SA. Five misperceptions surrounding the environmental impacts of single-use plastic, *Environmental Science & Technology*, 2020, 54 (22): 14143-51 (Cover Feature)

Gee I, Heard BR*, Webber M, Miller SA. The Future of Food: Environmental Lessons from E-Commerce, *Environmental Science & Technology*, 2020, 54 (23): 14776-84.

Ryan N*, Miller SA, Skerlos S, Cooper D. Reducing CO_2 emissions from US steel consumption by 70% by 2020, *Environmental Science & Technology*, 2020, 54 (22): 14598-608.

Ravikumar D*, Sick V, Miller SA, Keoleian GA. The Environmental Opportunity Cost of Using Renewable Energy for Carbon Capture and Utilization for Methanol Production, *Applied Energy*, 2020, 297: 115770

Heard BR*, Thi HT, Burra DD, Heller MC, Miller SA, Duong TT, Simioni M, Jones AD. The Influence of Household Refrigerator Ownership on Diets in Vietnam, *Economics and Human Biology*, 2020, 39, 100930.

Miller SA, Sharp BE*, Chamberlain JF*, Sarkar S*, Keerthi S*. Exploring adoption price effects on life cycle inventory results, *Int. J. Life Cycle Assessment*, 2020, 25(6), 1078-87.

Bergerson J, Brandt A, Cresko J, Carbajales-Dale M, MacLean HL, Matthews HS, McCoy S, McMannus M, Miller SA, Morrow III W, Posen ID, Seager T, Skone T, Sleep S. Life cycle assessment of emerging technologies: Evaluation techniques at different stages of market and technical maturity, *Journal of Industrial Ecology*, 2020, 24(1): 11-25.

*Received 2020 Graedel Prize for best paper by senior author in the journal

Leon EM*, Miller SA. An applied analysis of the recyclability of electric vehicle battery packs, *Resources, Conservation, and Recycling*, 2020, 157, 104593.

Sick V, Armstrong K, Cooney G, Cremonese L, Eggleston A, Faber G*, Hackett G, Katelhon A, Keoleian G, Marano J, Marriott J, McCord S, Miller SA, Mutcheck M, Olfe-Krautlein B, Ravikumar D*, Kjellerup Roper L, Schaidle J, Skone T, Smith L, Strunge T, Styring P, Tao L, Volker S, Zimmerman A. The need for and path to harmonized life cycle assessment and techno-economic assessment for carbon dioxide capture and utilization, *Energy Technologies,* 2019, 1901034: 1-7.

Hu G*, Mu X, Xu M, Miller SA, Potentials of GHG emission reductions from cold chain systems: case studies of China and the United States, *Journal of Cleaner Production*, 2019, 239: 118053.

Heard BR*, Bandekar M*, Vassar B*, Miller SA. Comparison of life cycle environmental impacts from meal kits and grocery Store meals, *Resources, Conservation, and Recycling*, 2019, 147: 189-200.

Heard BR*, Miller SA. Potential changes in greenhouse gas emissions from refrigerated supply chain introduction in a developing food system, *Environmental Science & Technology*, 2019, 53(1): 251-260.

Liang S, Qu S, Zhao Q; Zhang X, Daigger G, Newell J, Miller SA, Johnson JX, Love NG, Zhang L, Yang Z, Xu M. Quantifying the urban food-energy-water (FEW) nexus: The case of the Detroit metropolitan area, *Environmental Science & Technology*, 2019, 53(2): 779-788.

Hou P, Xu Y, Taibat M, Lastoskie C, Miller SA, Xu M. Life cycle assessment of end-of-life treatments for plastic film waste, *Journal of Cleaner Production*, 2018, 201: 1052-60.

Heard BR*, Taiebat M, Xu M, Miller SA. Sustainability implications of connected and autonomous vehicles for the food supply chain, *Resources, Conservation & Recycling*, 2018, 128: 22-24

Chen L*, Miller SA, Ellis BR. Comparative human toxicity impact of electricity produced from shale gas and coal, *Environmental Science & Technology*, 2017, 51(21): 13018-13027

Keerthi S*, Miller SA. Regional differences in impacts to water quality from the Bioenergy Mandate, *Biomass and Bioenergy*, 2017, 106:115-126.

Heard BR*, Miller SA, Liang S, Xu M. Emerging challenges and opportunities for the food-energy-water nexus in urban systems, *Current Opinion in Chemical Engineering*, 2017, 17:48-53 (invited).

Luo Y*, Miller SA. Using game theory to resolve the 'Chicken and Egg' situation in promoting cellulosic bioenergy development, *Ecological Economics*, 2017, 135:29-41

Alfaro JF*, Miller SA, Johnson JX, Riolo R. Improving rural electricity system planning: An agent-based model for stakeholder engagement and decision making, *Energy Policy*, 2017, 101: 317-331

Heard BR*, Miller SA. Critical research needed to examine the environmental impacts of expanded refrigeration on the food system, *Environmental Science & Technology*, 2016, 50(22): 12060-12071

Miller SA, Heard BR*. The environmental impact of autonomous vehicles depends on adoption patterns, *Environmental Science & Technology*, 2016, 50(12): 6119-6121

Sharp BE*, Miller SA. Potential for integrating diffusion of innovation principles into life cycle assessment of emerging technologies, *Environmental Science & Technology*, 2016, 50(6): 2271-2781

Kemausuor F*, Bolwig S, Miller S, Modelling the socio-economic impacts of modern bioenergy in rural communities in Ghana, *Sustainable Energy Technologies and Assessments*, 2016, 14: 9-20.

Bichraoui-Draper N, Xu M, Miller SA, Guillaume B. Agent-based life cycle assessment for switchgrass-based bioenergy systems, *Resources, Conservation & Recycling*, 2015, 103: 171-178.

Brunner A, Currie WS, Miller SA. Cellulosic ethanol production: landscape scale net carbon strongly affected by forest decision making, *Biomass and Bioenergy*, 2015, 83: 32-41.

Miller SA, Keoleian GA. Framework for analyzing transformative technologies in life cycle assessment, *Environmental Science & Technology*, 2015, 49(5): 3067-3075.

Orfield N, Levine R, Keoleian G. Miller S, Savage P. Growing algae for biodiesel on direct sunlight or sugars: A comparative life cycle assessment, *ACS Sustainable Chemistry and Engineering*, 2015, 3(3): 386-395.

Sarkar S*, Miller SA. Water quality impacts of converting intensively managed agricultural land to switchgrass, *Biomass and Bioenergy*, 2014, 68: 32-43.

De Kleine RD, Keoleian GA, Miller SA, Burnham A, Sullivan JL. Impact of updated material production data in the GREET life cycle model, *Journal of Industrial Ecology*, 2014, 18(3): 356-365.

Choudhary S, Liang S, Cai H, Keoleian GA, Miller SA, Kelly J, Xu M. Reference and functional unit can change bioenergy pathway choices, *International Journal of Life Cycle Assessment*, 2014, 19: 796-805.

Alfaro JF*, Miller SA. Extending industrial symbiosis to small holder farms: Modeling a case study in Liberia, West Africa, *Journal of Industrial Ecology,* 2014, 18(1): 145-154.

Alfaro JF*, Miller SA. Satisfying the rural residential demand in Liberia with decentralized renewable energy schemes, *Renewable and Sustainable Energy Reviews*, 2014, 30: 903-911.

Sharp B*, Miller SA. Estimating maximum land use change potential from a regional biofuel industry, *Energy Policy*, 2014, 65: 261-269.

Luo Y*, Miller SA. A game theory analysis of market incentives for US switchgrass ethanol, *Ecological Economics*, 2013, 93: 42-56.

Miller SA, Moysey S, Sharp B*, Alfaro JF*. A stochastic approach to model dynamic systems in LCA, *Journal of Industrial Ecology,* 2013, 17(3): 352-362.

Chamberlain JF*, Miller SA. Policy incentives for switchgrass production using valuation of non-market ecosystem services, *Energy Policy*, 2012, 48: 526-536.

Sarkar S*, Miller SA, Frederick JR, Chamberlain JF. Modeling nitrogen loss from switchgrass agricultural systems, *Biomass and Bioenergy*, 2011, 35(10): 4381-4389.

Chamberlain JF*, Miller SA. Using DAYCENT to quantify impacts of land use conversion to nitrogen-managed switchgrass in the southern U.S., *Agriculture, Ecosystems and Environment*, 2011, 141(3-4): 332-341.

Sarkar S*, Chamberlain JF*, Miller SA. A comparison of two methods to conduct material flow analysis on waste tires in a Small Island Developing State, *Journal of Industrial Ecology,* 2011, 15(2): 300-314.

Miller SA. Minimizing land use and nitrogen intensity of bioenergy, *Environmental Science & Technology,* 2010, 44(10): 3932-3939.

Miller SA, Landis AE, Theis TL. Environmental tradeoffs of bio-based production *Environmental Science & Technology*, 2007, 41(15): 5176-5182.

Miller SA, Landis AE, Theis TL, Reich RA. A comparative life cycle assessment of soybean oil and petroleum lubricants *Environmental Science & Technology*, 2007, 41(11): 4143-4149.

Landis AE, Miller SA, Theis TL. Life cycle of the corn-soybean agroecosystem for bio-based production, *Environmental Science & Technology* 2007, 41(4): 1457-1464.

Miller SA, Landis AE, Theis TL. Using Monte Carlo simulation to characterize nitrogen flows in agroecosystems, *Environmental Science & Technology* 2006, 40(7): 2324-2332.

Miller SA, Theis TL. Comparison of life-cycle inventory databases: A case study using soybean production. *Journal of Industrial Ecology* 2006, 10(1-2):133-147.

Ramos BL, Miller SA, Korfmacher K. Implementation of a Geographic Information System in the chemistry curriculum: An exercise in integrating environmental analysis and assessment. *J. Chem. Education*. 2003, 80: 50-54.

PEER-REVIEWED BOOK CHAPTERS

Miller SA. "Avoiding the unintended consequences of bioenergy", Perspectives on Biofuels: Potential Benefits and Possible Pitfalls. Eds. C. Taylor, R. Lomneth, F. Wood-Black. ACS Books. 2012. Chapter 5, 87-100.

Korfmacher K, Ramos B, Miller SA. "Chemistry and environmental science: Investigating soil erosion and deposition in the lab and field", Understanding Place: GIS and Mapping Across the Curriculum. Ed. Sinton, D.S. and J. Lund. ESRI Press: Redlands, CA, 2007. 201-210.

PEER-REVIEWED CONFERENCE PROCEEDINGS

Heariret A, Choudhary S, Miller SA, Xu M. Using an agent-based approach to model the emerging bio-energy industry, *Proceedings of the 2012 IEEE International Symposium on Sustainable Systems and Technology,* Boston, MA, May 2012

Alfaro JF*, Miller SA. Planning the development of electricity grids in developing countries: An initial approach using agent based models, *Proceedings of the 2011 IEEE International Symposium on Sustainable Systems and Technology*, Chicago, IL May 2011

Alfaro JF*, Sharp BE*, Miller SA. Developing LCA techniques for emerging systems: Game theory, agent modeling as prediction tools, *Proceedings of the 2010 IEEE International Symposium on Sustainable Systems and Technology,* Washington DC, 17-19 May 2010.

Seager TP, Miller SA, Kohn JL*. Land use and geospatial aspects of renewable energy. *Proceedings of the 2009 IEEE International Symposium on Sustainable Systems and Technology,* Phoenix AZ, 18-22 May 2009.

REPORTS AND OTHER PUBLICATIONS

Fetherston E*, Kinzler M*, Miller SA. Assembling Our Transportation Future: How could policies in the early 20th century have shaped more sustainable transportation systems? Michigan Sustainability Cases. 2018
Available: https://www.learngala.com/cases/model-t

**Received the 2019 Michigan Sustainability Case Innovation award*

Barteau M, Hoffman A, Maynard A, Miller S, Scavia D. Academic Engagement in Public and Political Discourse Preliminary Analysis of Survey Results. 2014
Available: http://graham.umich.edu/media/files/PrelimSurveyResults-PublicEngagement.pdf

Fang A*, Niese N*, Sharpe L*, Treanton M*. Analysis of the maximization of LEED points for the construction of a mid-rise apartment complex, *Agora: The Urban Planning and Design Journal of the University of Michigan*, University of Michigan, 2011, 5: 54-60.

Keoleian GA, Miller SA, De Kleine R.; Fang A, Mosley J. Life Cycle Material Data Update for GREET Model. Center for Sustainable Systems. University of Michigan. September 2011. pp 1-70.

Vander Mey BJ, Pascal S, Miller SA, Dodd VN*, Bornholdt H. Place-Based International Service-Learning: Landscapes for Learning in the Commonwealth of Dominica, West Indies. 2008. In *Service-Learning at Clemson University: Increasing our Focus on Collaboration*, Ed. Woodard, K. pp. 18-25, Clemson Univ. Service Alliance.

EXTERNAL FUNDING

2022-24 DOE REMADE: Modeling reverse flows of selected recycled materials, their associated energy use and their GHG emissions. An application to California and a blueprint for the US, $1M, co-PI, PI: Jean-Daniel Saphores (UC-Irvine)

2022-23 Sloan Foundation, Sustainability Implications of the Rural-Urban Digital Economy Divide, $49,992, PI

2022-23 Carrier Corporation, Calculating Avoided Food Waste from the Cold Chain, $63,012, PI

2021-24 NSF Environmental Sustainability program, Creating rapid, transparent, and updateable material flow analyses, $375,380, co-PI PI: Daniel Cooper

2020-24	NSF SCC-IRG: Reducing barriers to residential energy security through an integrated case-management, data-driven, community-based approach, $2.1M, co-PI, PI: Tony Reames
2019-20	NSF ERC Planning Grant: Engineering Research Center for Innovations in Resource Loss Reduction, Recovery, and Reuse (InnR3) for Sustainable Food Systems, $100,000, co-PI, PI: Ximing Cai (U. Illinois)
2019-20	NSF ERC Planning Grant: Engineering Research Center for Emerging Disaster Engineering Encompassing Human Directed Expert Systems (ERC-DEES), $100,000, Senior Personnel, PI: Jeff Naber (Michigan Tech)
2019-21	Morgan Stanley, Plastic Waste Reduction initiative, $100,000, Senior Personnel, PI: Greg Keoleian
2018-21	NSF Environmental Sustainability program, Changes in Energy Use and Water Stress Caused by Emergence of the Cold Chain, $317,000, PI: Shelie Miller
2016-20	NSF UNS: U.S.-China program: Integrated Systems Modeling of Food-Energy-Water (FEW) Nexus for Urban Sustainability, $499,990, co-PI, PI: Ming Xu
2009-14	NSF CAREER award, Environmental Sustainability program, Creation of Predictive and Dynamic Life Cycle Assessment Tool; $403,000, PI: Shelie Miller
2011-14	NSF Environmental Sustainability program, Developing a Spatially-Explicit Agent-Based Life Cycle Analysis Framework for Improving the Environmental Sustainability of Bioenergy Systems, $310,000, co-PI, PI: Ming Xu
2010-14	NSF Science Master's Program: Sustainable and Resilient Infrastructure, $700,000, co-PI, PI: Ronald Andrus, Clemson University
2011	Argonne National Laboratory, Update Material Production Modules in GREET 2 Model, $100,000, Senior Personnel, PI: Greg Keoleian, University of Michigan

2008-10 SC Energy Office, Examining the Potential Productivity and Site-Specific Management Needs of Switchgrass on the Coastal Plain; $143,523, co-PI, PI: Jim Frederick, Clemson University

2008-09 SC Dept of Agriculture, Developing a Multidisciplinary Research and Outreach Program Focused on Switchgrass Production, $10,000, PI: Shelie Miller

2009 NSF Environmental Sustainability: Land Use and Geospatial Aspects of Life Cycle Assessment; $80,000, co-PI, PI: Tom Seager, RIT

2007-08 EPA People, Prosperity, and Planet Program: Waste Tires on the Island of Dominica: Survey and Solutions; $10,000, PI: Shelie Miller

UNIVERSITY SUPPORT

2019-20 Toward Mastery: Re-envisioning Master's student learning through a competency-based and multi-mentoring approach, MCubed Diamond Initiative, PI: Michaela Zint, $60,000

2018-21 The Global CO2 Initiative at the University of Michigan, Blue Sky Initiative, PI: Volker Sick, $2,500,000

2016-17 MCubed Diamond: Defining Innovative Sustainable Solutions for Film-based Packages, Procter & Gamble, PI: Ming Xu, $60,000

2014-17 Third Century Initiative Phase 2, REFRESCH: Researching Fresh Solutions to the Energy/Water/Food Challenge in Resource-Constrained Environments, PI: Johannes Schwank, $2,998,832

2016 UM Water Center, "Comparing Toxic Emissions of Shale Gas and Coal for Electricity Generation", PI: Shelie Miller $20,000

2013-14 M-Cubed, Hydraulic Fracturing of Shales: Water Contamination Risks, Treatment Options, and Fate of Fracking Fluids, PI: Brian Ellis $60,000

2013-14 Third Century Initiative, "REFRESCH: Researching Fresh Solutions to the Energy/Water/Food Challenge in Resource-Constrained Environments", PI: Johannes Schwank, $299,989

2012-14 UM/SJTU Collaboration on Renewable Energy Science and Technology, Integrated Energy-Economy Environment (3E) Modeling for Clean Vehicle Development in China, PI: Ming Xu, $200,000

2012-13 Elizabeth Caroline Crosby Faculty award, ADVANCE/Rackham Graduate School, Modeling Sustainable Electricity Development, PI: Shelie Miller $9500

2011-12 SNRE Seed Grant, Forming Collaborative Relationships with the University of Liberia, PI: Shelie Miller $7000

2011-12 STEM-Africa, University of Michigan African Studies Center, Industrial Ecology in Rural Settings, PI: Shelie Miller $8000

INVITED LECTURES (last 10 years)

2022 Earthshift Global (virtual)

2021 Chinese Society for Industrial Ecology, Environmental and Ecological Systems Engineering Forum, (virtual)

2021 Environmental and Ecological Engineering, Purdue University

2019 Notre Dame Energy Research Symposium, South Bend IN

2019 Eastern Michigan University, Ypsilanti MI

2017 USAID, Global Development Lab, Applied Innovation and Acceleration, Washington DC

2017 National Academies of Sciences, Engineering, and Medicine, Jefferson Science Fellows Distinguished Lecture Series, Washington DC

2017 Environmental Defense Fund, Board of Directors Science Day Symposium, San Francisco CA

2016 Yale University, School of Forestry & Environmental Studies, New Haven CT

2016 UC-Irvine, Department of Civil and Environmental Engineering, Irvine CA

2016 Wayne State University, Sustainability @ Wayne Seminar Series, Detroit MI

2015 Argonne National Laboratory, Systems Science Center, Lemont IL

2015 University of New Hampshire, UNH Sustainability Lecture Series, Department of Environmental Engineering, Durham NH

2014 Tsinghua University, School of the Environment, Beijing China

2013 University of California Berkeley, Energy Biosciences Institute, Berkeley CA

2012 University of Illinois at Urbana-Champaign, Center for Advanced Bioenergy Research (CABER), Champaign, IL

INVITED WORKSHOPS AND PANELS (last 10 years)

2018 Sustainable Development Conference, "Careers and Opportunities in Sustainable Development", Panel Moderator

2017 National Academies Keck Futures Initiative, "Beyond Boundaries: 15 Years of Exploring Intersections in Science, Engineering and Medicine", National Academy of Sciences, Irvine CA

2017 LCA of Emerging Technologies Workshop, Canada First Research Excellence Fund Initiative, Banff Alberta

2016 Critical Barriers to Progress in Sustainability Science
Gordon & Betty Moore Foundation, Irvine CA

2014 National Academies Keck Futures Initiative, "Collective Behavior: From Cells to Societies", National Academy of Sciences, Irvine CA

2014 Incorporating Bioenergy in Sustainable Landscape Designs. US DOE Bioenergy Technologies Office, Lemont IL

2013 Kavli Frontiers of Science Symposium, National Academy of Sciences, Irvine CA

CONFERENCE PRESENTATIONS (last 10 years)

2020 Univation Global Technology Conference, Life Cycle Thinking and Sustainable Design for the Plastics Industry, October 2020, virtual (invited)

2019 Sustainability Cases to Improve Learning Outcomes in STEM, *Association of Environmental Engineering and Science Professors,* Tempe AZ, May 2019

2018 Transforming the Environmental Impacts of the Food System via the Cold Chain, *International Conference on Resource Sustainability,* Beijing China, June 2018 (invited)

2016 The Effect of Adoption Patterns on the Environmental Impacts of New Technology, *Gordon Research Conference on Industrial Ecology,* Stowe, VT, June 2016 (invited)

2015 Using Scenario Models to Estimate the Environmental Impacts of New Technologies, *Association of Environmental Engineering and Science Professors Meeting*, New Haven CT, June 2015

2015 Estimating the Environmental Impacts of Emerging Technologies, *International Symposium of Sustainable Systems and Technology*, Dearborn MI, May 2015

2015 A Proactive Approach to Manage Unintended Consequences of Emerging Technologies, *Engineering Sustainability Conference 2015*, Pittsburgh PA, April 2015 (invited)

2013 Using Diffusion of Innovations Principles in Future Scenario Modeling, *American Center for Life Cycle Assessment LCA XIII Conference*, Orlando FL, October 2013

2013 Modeling the Environmental Impacts of Emerging Energy Technologies, *Association of Environmental Engineering and Science Professors Meeting*, Golden CO, July 2013.

ADVISING

Postdoctoral Fellows

2020	Dwarak Ravikumar	
2012	Yi Luo	

Committee Chair

Current	Madeline Miller	PhD candidate (co-chair)
	Carissa Knox	PhD candidate (co-chair)
	Aaron Friedman-Heiman	MS student
2022	Yabin Dong	PhD Natural Resources and Environment
2020	Nicole Ryan (co-chair)	PhD Natural Resources and Environment
2020	Brent Heard	PhD Natural Resources and Environment
2016	Shamitha Keerthi	PhD Natural Resources and Environment
2014	Jose Alfaro	PhD Natural Resources and Environment
2013	Ben Sharp	PhD Env. Engineering and Earth Sciences
2011	Jim Chamberlain	PhD Env. Engineering and Earth Sciences
2023	Luyi Huang	M.S. Natural Resources and Environment
2022	Rahul Bejarano	M.S. Natural Resources and Environment
2021	Hannah Fetner	M.S. Natural Resources and Environment
2020	Evan Leon	M.S. Natural Resources and Environment
2016	Lu Chen	M.S. Natural Resources and Environment
2015	Kiran Chawla	M.S. Natural Resources and Environment
2010	Joel Kuhn	M.S. Env. Engineering and Earth Sciences
2010	Watcharapol Pumkaew	M.S. Env. Engineering and Earth Sciences
2009	Saumya Sarkar	M.S. Env. Engineering and Earth Sciences

Committee Member

2021	Chanyang Shui	PhD Natural Resources and Environment
2021	Bu Zhao	PhD Natural Resources and Environment

2019	Ping Hou	PhD Natural Resources and Environment
2019	Stephanie Crocker	PhD Electrical Engineering
2019	Brian Konecke	PhD Earth and Environmental Science
2018	Kevin Bi	PhD Natural Resources and Environment
2018	Maryam Arbabzadeh	PhD Natural Resources and Environment
2014	Qiang Dai	PhD Civil and Environmental Engineering
2013	Nolan Orfield	PhD Natural Resources and Environment
2011	Marguerite Renouf	PhD Environmental Engineering
2014	Josh Novacheck	M.S. Natural Resources and Environment
2013	Joe Colett	M.S. Natural Resources and Environment
2012	Anna Clemons	M.S. Natural Resources and Environment
2011	Russell Martin	M.S. Env. Engineering and Earth Sciences
2010	Jenilee Harrison	M.S. Civil Engineering
2010	Andrea Hicks	M.S. Env. Engineering and Earth Sciences
2010	Dan Matz	M.S. Env. Engineering and Earth Sciences
2010	Dylan Fowler	M.S. Env. Engineering and Earth Sciences
2009	Michael Hickey	M.S. Env. Engineering and Earth Sciences
2008	David Simpson	M.L.A. Landscape Architecture

Visiting Scholars

2018	Guangwen Hu, China, China Scholarship Council
2013	Francis Kemausuor, Ghana, University of Michigan African Presidential Scholar

MASTERS' PROJECTS (14 month projects w/ an external client)

2020-21 Starbucks, "Beneficial Reuse of Coffee Grounds"

2019-20 Ecoparques Penalolen, "Promoting circular economy through extended producer responsibility policies", Santiago de Chile

2018-19 Amcor, "Towards a Global Plastics Protocol: Policy Solutions for Closing the Loop on Plastics"

2016-17 Bell's Brewery, "Decision Support for Water Supply Chain Management"
co-advised w/Joe Arvai

2015-16 FLARE, "Estimating GHG Emissions on Cattle Ranches in the Brazilian Amazon"
co-advised w/Arun Agrawal

2014-15 Kellogg Corporation, "Sustainable Agriculture in Asia"
co-advised w/ Ming Xu

Little Traverse Bay Bands of Odawa Indians; "Energy Audit"
co-advised w/ Greg Keoleian

More Than Me – Girls School in Liberia, "Redesign of School Grounds"
co-advised w/ Jose Alfaro and Bob Grese

2011-12 Swedish Biogas, LLC ; "Life Cycle Modeling and Environmental Impact Assessment of Commercial Scale Biogas Production"

TEACHING

University of Michigan
ENV 433 Fossil and Renewable Energy Resources
ENV 201 Ecological Issues
NRE 597 Environmental Systems Analysis
NRE 557 Industrial Ecology

Erb Institute Executive Education program on Sustainability

Clemson University
EES 486/686 Pollution Prevention and Industrial Ecology
EES 820 Environmental Systems Analysis
EES 806 Environmental Design
ENSP 200 Introduction to Environmental Science
EES 485/685 Hazardous Waste Management

MAJOR SERVICE ACTIVITIES

External (appointed/elected positions):

Federal Biomass Research and Development Technical Advisory Committee. Appointed by the US Secretaries of Energy and Agriculture (2015-20)
Nominating Committee, International Society of Industrial Ecology. Elected (2011-14) (Chair in 2014)
South Carolina Climate Energy and Commerce Advisory Committee. Appointed by SC Governor; Residential, Commercial, and Industrial Technical Workgroup (2008-09)

External (not appointed/elected):

School of Env. and Forest Sciences external review, University of Washington (2020)
Program Management Review of the Bioenergy Technologies Office
US Department of Energy
Steering Committee (2015, 2017)
Lead Reviewer, Sustainability and Analysis technical area (2013)
External Advisory Board, Institute of Environmental Science and Policy, University of Illinois at Chicago (2013-18)
Review Panels: NSF, USDA, DOE, EPA, G8 Research Councils, SunGrant, Ellen MacArthur Foundation New Plastics Economy Initiative

Workshop and Conference Organization:

ISSST Conference Technical Committee (2010-2020)
Sustainable Development Conference Organizing Committee (2018-19)
AEESP Conference Technical Committee (2009, 2011)
ISIE Technical Committee (2009)
Co-Chair, Workshop on Land Use in LCA (2009)
Gordon Conference on Industrial Ecology Organizing Committee (2008)
Faculty adviser, Student Conference on Industrial Ecology (2008)

Internal (appointed/elected):

Director, Program in the Environment. Appointed by SEAS & LSA deans (2018-present)
Executive Committee, School for Environment and Sustainability. Elected (2014-16; 2018-21)

Internal (not appointed/elected):

Provost's Faculty Advisory Committee (2022-)
Core Faculty, Center for Sustainable Systems (2010-)
Erb Institute Faculty Affiliate (2019-)
President's Public Engagement Award Selection Committee (2018-21, chair 2020)
Co-chair, Program in the Environment faculty transition committee (2017-18)
Director, Graduate Certificate in Sustainability (2014-16)
Steering Committee, Academic Engagement in Public and Political Discourse (2013-15)

MEMBERSHIPS

International Society of Industrial Ecology, ISIE (2001-)
Society of Environmental Toxicology and Chemistry, SETAC (2006-)
Assoc. of Environmental Engineering and Science Professors, AEESP (2007-)
American Association for the Advancement of Science, AAAS (2015-)

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