Andrea Hicks

hicks5@wisc.edu

Rm 2208, Engineering Hall
1415 Engineering Drive
Madison, WI 53706
608.262.1262

Appointments

University of Wisconsin, Madison WI
Civil and Environmental Engineering
Assistant Professor, 2015-present
Nelson Institute for Environmental Studies, Geological Engineering, Freshwater & Marine Sciences
Courtesy Appointment, 2016 + - present
Interim Director of Sustainability Education and Research, 2021-present
University of Illinois at Chicago, Chicago IL
Institute for Environmental Science and Policy
Postdoctoral Research Associate, 2014-2015

Education

PhD Civil Engineering, August 2014, University of Illinois
Department of Civil and Materials Engineering, Chicago, Illinois
Institute for Environmental Science and Policy
(Environmental Systems Focus)
Advisor: Thomas L. Theis

MS Environmental Engineering, December 2010, Clemson University
Department of Environmental Engineering and Earth Science, Clemson, South Carolina
(Sustainable Systems Focus)
Advisor: Cindy M. Lee

BS Environmental Engineering, May 2009, Michigan Technological University
Department of Civil and Environmental Engineering, Houghton, Michigan

Awards & Honors

- Hanson Family Fellow in Sustainability, Nelson Institute for Environmental Studies (*2020*)
- RCSA/Sloan Foundation Scialog Negative Emissions Science Fellows (*2020*)
- UW-Madison Chancellor's Award for Excellence in Community-Based Learning Teaching Award (*2020*)
- National Science Foundation CAREER award (*2020*)
- Sustainable Nanotechnology Organization Emerging Investigator Award (*2018*)
- UW-Madison Grainger Engineering Institute Scholar Award (*2017*)
- ISSST Travel Award (*2016*)
- VRGE Travel Award (*2016*)
- ISIE Travel Award (*2015*)
- ISSST First Place Student Paper Competition *(2013)*
- UIC Graduate Student Council Travel Award *(2013)*
- UIC Graduate College Student Travel Presenters Award *(2013)*
- UIC Institute for Environmental Science and Policy Predoctoral Fellowship *(2012)*
- UIC Provost's Award for Graduate Research *(2012)*
- UIC Student Research Forum Graduate Sustainability Award *(2012, 2013)*
- UIC Chancellor's Graduate Research Fellowship *(2012, 2013)*
- L.G. Rich Water Environment Association Fellowship *(2011)*
- SETAC Student Travel Award *(2010)*
- CSETAC Third Place Poster Competition *(2010)*
- WERC Competition Second Place *(2009)*
- Girl Scout Gold Award *(2005)*

Professional Membership

Society of Environmental Toxicologists and Chemists (SETAC)
International Society for Industrial Ecology (IS4IE)
Sustainable Nanotechnology Organization (SNO)
Engineer in Training (EIT) State of Michigan

Service

Nelson Institute Academic Planning Council (*2020-present*)
Nelson Institute Governance Committee (*2020-present*)

Associate Editor, Integrated Environmental Assessment and Management (*2020-present)*
Editorial Board, Integrated Environmental Assessment and Management (*2017-2019)*
UniverCITY Alliance Board Member (*2019 – present*)
UW-Madison Green Fund Committee Member (*2017-present*)
Advisor for the Engineering for Energy Sustainability Certificate Program (*2016-present*)
Faculty Senator *(2016 – 2019*)
UIC Green Fee Advisory Board *(2011-2014)*

Selected Pub (Advised Students and Postdocs , **Hicks,** *PhD Advisor*) (see Google Scholar for most up to date list)

1. Temizel-Sekeryan S, **Hicks A**, (2020) Emerging investigator series: calculating size- and coating-dependent effects factors for silver nanoparticles in to inform characterization factor development for usage in life cycle assessment, *Environmental Science: Nano*, Article in Press
2. Sena M, Seib M, Noguera D, **Hicks A**, (2020) Environmental impacts of phosphorus recovery through struvite precipitation in wastewater treatment, **Journal of Cleaner Production**, Article in Press
3. Temizel-Sekeryan S, Wu F, **Hicks A,** (2020) Life cycle assessment of struvite precipitation from anaerobically digested dairy manure: a Wisconsin perspective, *Integrated Environmental Assessment and Management,* Article in Press
4. Grant C, **Hicks AL**, (2020) Global warming impacts of residential electricity consumption: agent based modeling of rooftop solar panel adoption in Los Angeles County, California, *Integrated Environmental Assessment and Management,* https://doi.org/10.1002/ieam.4315
5. Wu F, Zhou Z, Temizel-Sekeryan S, Ghamkhar R., **Hicks AL**, (2020) Assessing the environmental impact and payback of carbon nanotube supported CO2 capture technologies using LCA methodology, *Journal of Cleaner Production*, **270** (10) 122465
6. Temizel-Sekeryan S, **Hicks AL**, (2020) Global environmental impacts of silver nanoparticle production methods supported by life cycle assessment, *Resources, Conservation and Recycling*, **156**: 104676
7. Ueleman JA, Aley I, Nehls B, **Hicks A**. (2020) Sustainability impacts of installing low-flow toilets in a university residence hall, *Sustainability; The Journal of Record*, 13(2): 74-80.
8. Sena M, Morris MR, **Hicks A**, (2020) An exploration of economic valuation of phosphorus in the environment and its implications in decision making for resource recovery, *Water Research*, 172, 115449.
9. Vineyard D, **Hicks AL**, Karthikeyan KG, Barak P, (2020), Economic analysis of electrodialysis, denitrification, and anammox for nitrogen removal in municipal wastewater treatment, *Journal of Cleaner Production*, 121145
10. Ghamkhar R, Hartleb C, Wu F, **Hicks AL**, (2020) Life cycle assessment of a cold weather aquaponic food production system, *Journal of Cleaner Production*, 244, 118767
11. Wu F, Seib M, Mauel S, Klinzing S, **Hicks AL**, (2020) A citizen science approach estimating titanium dioxide release d from persona care production, *PlosOne*, https://doi.org/10.1371/journal.pone.0235988
12. Ghamkhar R, **Hicks AL**, (2020) Comparative environmental impact assessment of aquafeed production: sustainability implications of forage fish meal and oil free diets, *Resources, Conservation and Recycling*, 161, 104849
13. Grant C., Garcia J, **Hicks AL**, (2020) Environmental payback periods of multi-crystalline silicon photovoltaics in the United States – How prioritizing based on environmental impact compares to solar intensity, *Sustainable Energy Technologies and Assessments*, 39, 100723.
14. Chakraborty R, Daloz AS, L'Ecuyer T, **Hicks A**, Young S. Kang Y, Shar M, (2020) A relational vulnerability analytic: exploring hybrid methodologies for human dimensions of climate change research in the Himalayas, *Himalayan Weather and Climate and their Impact on the Environment*, 493-524.
15. Grant CA, **Hicks AL**, (2020) Effect of manufacturing and installation location on environmental impact of payback time of solar power, *Clean Technologies and Environmental Policy*, **22**(1), 187-196.
16. Wu F, **Hicks AL**, (2020) Estimating human exposure to titanium dioxide from persona care products through a social survey approach, *Integrated Environmental Assessment and Management,* **16** (1), 10-16.
17. Wu F, Ghamkhar R, Ashton W, **Hicks AL**, (2019) Sustainable seafood and vegetable production: aquaponics as a potential opportunity in urban areas, *Integrated Environmental Assessment and Management* **15** (6), 832-843.
18. **Hicks AL**, Halvorsen H, (2019) Environmental impact of evolving coffee technologies, *The International Journal of Life Cycle Assessment*, **24** (8), 1396-1408.
19. **Hicks AL,** Temizel-Sekeryan S, (2019) Understanding the potential environmental benefits of nanosilver enabled consumer products, *NanoImpact*, 16, 100183.
20. Bryan T, **Hicks AL**, Barrett B, Middlecamp C, (2019) An environmental impact calculator for 24-h diet recalls, *Sustainability*, **11** (23) 6866
21. Wu F, Zhou Z, **Hicks AL**, (2019) Life cycle impact of titanium dioxide nanoparticle synthesis through physical, chemical, and biological route, *Environmental Science and Technology*, **53** (8) 4078-4087.
22. Sena M, **Hicks A,** (2018) Life Cycle Assessment Review of Struvite Precipitation in Wastewater Treatment, *Resources, Conservation, and Recycling,*139, 194-204

23. Bi, Y, Westerband E, Alum A, Brown F, **Hicks AL,** Abbaszadegan M, Hristovski K, Westerhoff P (2018) Washing losses from nanosilver enabled food storage containers, *ACS Sustainable Chemistry and Engineering,* **6** (10): 13086-13095.
24. Westerband E, **Hicks AL** (2018) Environmental payback of food storage in nanoenabled food storage containers, *Integrated Environmental Assessment and Management,* **14** (6), 769-776
25. Grant C, **Hicks AL** (2018) Comparative life cycle assessment of milk and plant-based alternatives, *Environmental Engineering Science*, **35** (11)1235-1247
26. **Hicks AL,** Grant C (2018) Using community based learning to teach environmental sustainability engineering: notes from the from the classroom, submitted to *Sustainability: the journal of record,* 18, 2018
27. **Hicks AL,** Dysat A, Pol V, (2018) Environmental Impacts of Graphitic Anode Synthesis from waste products, *Environmental Sciences: Nanotechnology*, **5** (5), 1237-1250.
28. Westerband E, **Hicks AL** (2018) Life cycle impact of nanosilver polymer-food storage containers as a case study informed by literature review, *Environmental Sciences: Nanotechnology.* **5**, 933.
29. **Hicks AL** (2018) Environmental Implications of Consumer Convenience – Coffee as a case study, *Journal of Industrial Ecology*. **22** (1), 79-91
30. Marten B, **Hicks AL** (2018) Life cycle environmental impacts of polystyrene and potential recycling, *Sustainability: the journal of record.* **11** (1), 29-35.
31. **Hicks AL** (2018) Saving energy through multifunctional consumer products: an analysis utilizing current literature and life cycle assessment methodology, *International Journal of Life Cycle Assessment,* **23** (2), 267-278.
32. **Hicks AL** (2017) Exploring the benefits and costs of nanosilver utilizing MCDA, *Environmental Sciences: Nanotechnology*. **4**, 1647-1655.
33. **Hicks AL** (2017) 'What we have learnt from the life cycle impacts of nano silver products', in Nanotechnologies in Preventative and Regenerative Medicine, Elsevier, Editor: Vuk Uskokovic, Book Chapter
34. **Hicks AL,** *Theis TL.* A comparative life cycle assessment of commercially available household silver enabled polyester textiles. (2017), *International Journal of Life Cycle Assessment*. 22: 256
35. **Hicks AL,** Reed R., *Theis TL*, Hannigan, D., Huling, H., Zaikova, T., Hutchison, J., Miller, J. (2016) Environmental impacts of reusable nanoscale silver-coated hospital gowns compared to single-use, disposable gowns, *Environmental Sciences Nanotechnology*. **3**, 1124-1132
36. Bowman SR, Biermans G, **Hicks AL,** Jevtic DM, Rodriugez-Gil JL, Brockmeier EK, (2015) A guide for using social media in environmental science and outreach initiatives by the Students of SETAC. *Environmental Sciences Europe.* 27 (32).
37. **Hicks AL,** Gilbertson LM, Yamani JS, Zimmerman J, *Theis TL* (2015) Life cycle payback estimates of nanosilver enabled textiles under different loading, release, and laundering scenarios informed by literature review. *Environ. Sci. Technol.* 49 (13), 7529-7542.
38. **Hicks A**L, *Theis TL,* Zellner ML, (2015) Emergent effects of residential lighting choices: prospects for energy savings. *Journal of Industrial Ecology.* 19 (2), 285-295.
39. **Hicks AL**, *Theis TL* (2014) An agent based approach to the potential for rebound resulting from evolution of residential lighting technologies. *International Journal of Life Cycle Assessment.*19 (2), 370-376.
40. **Hicks AL,** *Theis TL* (2014) Residential energy efficient lighting adoption survey. *Energy Efficiency*. 7(2), 323-333.

Funding

1. Investigation of the carbonation dynamics of synthetic silicates: guiding the development of net-negative production process and deployment in enhanced rock weathering, Sloan Foundation, $55,000, 2021
2. RAPID: Influence of reusable personal protective equipment on resilience of hospitals in a pandemic, NSF, $78,000, 2020-2021
3. CAREER: Environmental Sustainability of closed loop food production systems – aquaponics as a case study, NSF, $509,000, 2020-2025
4. E-bike sharing and the infrastructure implications and environmental impacts of new technology in transportation systems, C-TEDD (US DOT), $97,000, 2020-2021
5. End of life environmental impacts of engineered nanomaterials, Wisconsin Alumni Research Foundation, $41,878, 2020-2021
6. Teaching Life Cycle Assessment Online, UW-Madison, Online Teaching Support, $15,000, 2019
7. Farm to Fork – transportation implications of aquaponics, Wisconsin Alumni Research Foundation, $40,000
8. Environmental Impacts of Autonomous Vehicles, C-TEDD (US DOT), $69,000, 2018-2019
9. Environmental Impacts of Aquaponics, Wisconsin Sea Grant (NOAA), $39,677, 2018-2019
10. Global Environmental Impacts of Nanotechnology, Wisconsin Alumni Research Foundation, $40,000, 2018-2019
11. EAGER: PPER: GOALI: Down the drain - using citizen science to inventory titanium dioxide in personal care products, NSF, $99,709, 2017-2018

12. INFEWS/T3: A Multi-Scale Platform for Technology Evaluation for Decision-Making in the Dairy-Energy-Water Nexus, USDA, $2,500,000 (CO-PI $370,000), 2017-2020
13. Climate and Land-Use Change at the Third Pole: Coupled human-natural systems and their impacts on livelihood vulnerability in the Himalayas, UW-Madison IRIS, $50,000 (CO-PI $4,000), 2016-2017
14. Environmental Impact of nAg Consumer Products, Wisconsin Alumni Research Foundation, $40,271, 2017-2018
15. Agent-Based Modeling of Solar Adoption, UCLA Sustainable Grand Challenge Research Grants, $127,400 (CO-PI $40,000), 2017
16. UW-Madison, Morgridge Center for Public Service, Community Based Learning Course Development Grant, $5,000, 2016
17. UW-Madison Educational Innovation Committee, Designing for Environmental Sustainability, $27,000 (PI $20,000), 2016-2017

Teaching

CEE 421, Environmental Sustainability Engineering, Fall 2015, 2016, 2017, 2018, 2019, 2020
CEE 429, Environmental Systems Optimization, Spring 2016
CEE 494, Civil and Environmental Engineering Decision Making, Spring 2017, 2018, 2019, 2020, 2021
CEE 929, Environmental Engineering Seminar Series, Fall 2016, 2017, 2018, 2019, Spring 2020,

Outreach

Wisconsin Public Radio, Wednesday Nite @ the Lab, Wisconsin Energy Institute Summer Research Experience for Teachers, Women in Science and Engineering Residential Community speaker, Saturday Science