

## Jennie Perey Saxe, PhD

26 Medbury Lane | Wallingford PA 19086 | jenniesaxe@icloud.com | 302-463-4807  
<https://sites.udel.edu/jpsaxe/> | <https://orcid.org/0000-0002-7282-5672> | [Google Scholar](#)

### EDUCATION

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PhD, Civil (Environmental) Engineering  
MAS, Civil (Environmental) Engineering  
BSPH, Environmental Science

University of Delaware  
University of Delaware  
University of North Carolina at Chapel Hill

### CURRENT POSITION

University of Delaware, Department of Civil and Environmental Engineering, Newark, DE (Sept 2017-present)

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#### Associate Department Chair

2023-present

Serves as head of the Undergraduate Committee overseeing curriculum revision, undergraduate recruiting, and advising. Coordinates ABET accreditation activities. Point of contact for interactions with other undergraduate programs. Member of Department leadership team. Assists Department Chair with all aspects of Department operations.

#### Associate Professor

2023-present

#### *Teaching and advising* (\* indicates course also taught at the rank of Assistant Professor)

Instruction, assessment, and course design in required and technical elective courses for civil and environmental engineering students; undergraduate student advising; participation on doctoral committees.

<u>Course</u>	<u>Level</u>	<u>Academic year(s) taught</u>
CIEG 411: Communicating with Stakeholders in Engineering*	Undergraduate	2023/24
CIEG 434/635: Air Pollution Control*	Undergraduate, graduate	2023/24
CIEG 436: Processing, Recycling, & Management of Solid Waste*	Undergraduate	2023/24
CIEG 445/645: Industrial Ecology*	Undergraduate, graduate	2023/24

#### *Engineers Without Borders*

Co-advisor to the Engineers Without Borders – University of Delaware chapter from 2020 – present. Advise students on organizational, technical, logistical, communications, and other aspects of chapter operations and projects in Malawi, Bolivia, and The Philippines. Develop budgets and manage multiple funds. Actively engage in development and donor stewardship activities. Liaise with College and University units to ensure compliance with financial, travel, and registered student organization procedures.

#### *Additional service* (\* indicates activity continued from rank as Assistant Professor)

##### *Departmental service*

2023-present ABET accreditation lead for environmental engineering program\*

##### *University service*

2023-present Faculty Senate Diversity & Inclusion Committee\*

##### *Professional and community service*

2023 Delaware County (PA) Sustainability Commissioner\*

**Research interests**

Sustainability, environmental/social justice, communication, and stakeholder engagement

**Research mentoring**

2023-present Mentoring two undergraduate students on transportation equity project as part of Region 3 UTC

**Doctoral committees served**

*In progress (advisor)*

Rachel Burch (Daniel K. Cha), Cuijuan Feng (Chin-Pao Huang), Mu-Hsiang Hsieh (Chin-Pao Huang), Michael Huang (Chin-Pao Huang)

**Assistant Professor****2017-2023****Teaching and advising** (\* indicates course also taught after promotion to Associate Professor)

Instruction, assessment, and course design in required and technical elective courses for civil and environmental engineering students; undergraduate student advising; participation on doctoral committees. Developed new course (CIEG411) and significantly revised others. Annual 3/2 teaching load in the following courses:

<u>Course</u>	<u>Level</u>	<u>Academic year(s) taught</u>	<u>Modalities</u>
CIEG 331: Environmental Engineering	Undergraduate	2017/18-2021/22	In-person, online synchronous
CIEG 411: Communicating with Stakeholders in Engineering*	Undergraduate	2018/19-2022/23	In-person, online/hybrid
CIEG 434/635: Air Pollution Control*	Undergraduate, graduate	2017/18-2022/23	In-person, flipped online
CIEG 436: Processing, Recycling, & Management of Solid Waste*	Undergraduate	2017/18-2022/23	In-person, online synchronous
CIEG 445/645: Industrial Ecology*	Undergraduate, graduate	2017/18-2021/22	In-person, online synchronous
CIEG 465: Global Sustainable Engineering*	Undergraduate	2017/18-2022/23	In-person, online asynchronous
CIEG 631: Industrial Ecology Methods: Life Cycle & Material Flow Analyses for a Circular Economy	Undergraduate, graduate	2020	Online asynchronous

**Selected pedagogical training**

2020	<i>University of Delaware:</i> Developing Learning Experiences Online
2020	<i>University of Delaware:</i> Teaching Online Together
2020	<i>ASEE:</i> National Effective Teaching Institute 3 (NETI-3) Online
2019	<i>University of Delaware:</i> Faculty Peer Observation Program
2019	<i>National Academy of Engineering:</i> Working Ethics Into the Conversation: Introducing STEM Faculty to Teaching Ethics
2018-2022	<i>University of Delaware:</i> Summer Institute on Teaching and Winter Institute on Learning
2018	<i>ASCE:</i> Excellence in Engineering Education (ExCEED) Teaching Workshop; mini-ExCEED

**Selected professional development training**

2022-2023	<i>VISTAGE:</i> Emerging Leader Program
2022	<i>Michigan State University:</i> Crime Prevention Through Environmental Design (CTPED) training
2022	<i>Embry-Riddle:</i> Recreational UAS Safety Test (TRUST) Completion Certificate
2021	<i>University of Delaware:</i> Human Subjects Protections - Social-Behavioral-Educational Focus - All UD Researchers/Faculty/Staff
2020	<i>University of Delaware:</i> Responsible Conduct of Research training

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**Service** (\* indicates activity continued after promotion to Associate Professor)

*Departmental service*

- 2023 Search committee member: Director and Edgar P. Small Professor, Construction Engineering and Management (CEM) Program
- 2022-2023 Search committee member: continuing track assistant professor for CEM program
- 2021-2023 Diversity, equity, and inclusion representative
- 2020-2023 Environmental engineering representative to undergraduate/ABET committee\*
- 2017-2023 ABET accreditation lead for environmental engineering program\*

*College service*

- 2020-2023 Engineers Without Borders – University of Delaware chapter co-advisor \*
- 2020 Strategic Planning Guiding Coalition facilitator
- 2019-2022 Junior Faculty Advisory Committee

*University service*

- 2022-2023 Faculty Senate Diversity & Inclusion Committee\*

*Professional and community service*

- 2020-2023 Delaware County (PA) Sustainability Commissioner\*
- 2019 & 2022 ASCE ExCEEEd program assistant mentor
- 2018-2023 Reviewer for ASEE conference papers and *Environment, Development and Sustainability* and *Environmental Engineering Science* journals

**Research mentoring**

- 2022-2023 Mentored two undergraduate students on DelDOT EV infrastructure research project
- 2020 Mentored 2020 DENIN Summer Scholar research on alternate uses of scrap tires

**Doctoral committees served**

*Graduated students (defense date; advisor)*

Wanze Li (May 2023; Chin-Pao Huang), Xiangmin Liang (April 2023; Daniel K. Cha), Jing-Hua Tzeng (January 2023; Chin-Pao Huang), Robert Giraud (June 2021; Chin-Pao Huang)

## HONORS AND AWARDS

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- 2021, 2023 *University of Delaware*: Nominee for Excellence in Teaching Award
- 2023 *University of Delaware College of Engineering*: Nominee for Diversity and Inclusion Award
- 2018 *American Society of Civil Engineers (ASCE)*: ExCEEEd Teaching Fellow
- 2013 *U.S. EPA*: Region III Lorraine Urbiet Communicator of the Year Award
- 2005-2017 *U.S. EPA*: Multiple recognitions with the Bronze Medal for Commendable Service, once with the Silver Medal for Superior Service, and once with the Gold Medal for Exceptional Service
- 2002 *Battelle/URS*: Winner, Student Paper Competition - Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds

## PROFESSIONAL HISTORY

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### U.S. Environmental Protection Agency Region III, Philadelphia, PA

2017 *Acting Government Relations Team Leader*

Led a team of government affairs specialists to develop strategic plans for interacting with elected officials in the mid-Atlantic states.

2016-2017 *International and Tribal Affairs Liaison*

Arranged environmental study tours for visiting delegations and developed training and technical assistance. Led tribal consultation activities and developed a culture of enhanced awareness regarding tribal consultation.

2013-2016 *Water Policy Analyst*

Sustainability coordinator across multiple water programs. Assisted FEMA with incorporating sustainability and climate change adaptation into the National Disaster Recovery Framework.

2014-2015 *Acting Deputy Associate Director, Office of Infrastructure and Assistance*

Enhanced awareness of EPA's water infrastructure programs by writing blogs, editing trade publications, and organizing press events.

2014 *Communications Coordinator, Water Protection Division*

Wrote water-related communications materials, including press releases and desk statements. Wrote for and managed content on EPA's weekly *Healthy Waters for the Mid-Atlantic* blog from 2014-2016.

2011-2013 *State and Congressional Liaison*

Communicated routinely with elected officials on environmental matters affecting their districts, working across all environmental statutes to respond to inquiries and constituent concerns.

2003-2011 *Drinking Water Team Leader and Program Manager*

Evaluated drinking water monitoring data, inspected water treatment plants, managed grant funding, reviewed state radionuclide regulations, and provided technical assistance on radionuclides analysis and treatment.

### The University of Connecticut, Storrs, CT

2003 *Visiting scientist*

### The University of Delaware, Newark, DE

1999-2003 *Teaching Fellow (2002-2003) and graduate research assistant (1999-2003)*

## FUNDING

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### University of Delaware Office of the Provost

**Total award: pending**

*BRACE for Change: Building Resilience through Applied Civil | Coastal | Collaborative Engineering*

**Principal investigator (PI)** for project selected in July 2023 as one of eight proposals – among over 70 in total – for seed funding from the Office of the Provost. Shaped by Delaware's coastal nature and the projected shortfall in civil engineering graduates, *BRACE for Change* reimagines the civil engineering curriculum to integrate the effects of climate change into core courses, resulting in a connected curriculum with experiential learning and reflective opportunities.

## US Department of Transportation

Total award: \$43,654

*Regional UTC: Sustainable Mobility and Accessibility Regional Transportation Equity Research (SMARTER) Center*

This award represents a portion of the \$15M, 5-year total funding for the Region 3 University Transportation Center (UTC), led by Morgan State University. Along with researchers from other institutions in DOT Region 3 states, as **co-PI**, my focus in 2023-24 is the application and assessment of crime prevention through environmental design (CPTED) principles in public transit. My research engages undergraduate student researchers. February 2023-present.

## Delaware Department of Transportation (DelDOT)

Total award: \$47,416

*Message Mapping for Enhanced EV Adoption in Delaware*

As **PI** for this project, engaged two undergraduate researchers – one environmental engineering student and one environmental policy student – to develop communication materials to support increased electric vehicle (EV) adoption and development of equitable EV infrastructure in Delaware. The research product is a set of message maps grounded in literature that anticipate and respond to stakeholder questions regarding EV adoption. September 2022-June 2023.

## Delaware Department of Natural Resources and Environmental Control

Total award: \$19,922

*Alternate Uses of Scrap Tires*

I was **PI** on this project funded through a Collaborative Agreement between the Delaware Environmental Institute (DENIN) at University of Delaware and DNREC. The project resulted in a report on potential alternative uses of scrap tires in Delaware. An undergraduate DENIN Scholar led research and development of this report. April-August 2020.

## PUBLICATIONS AND CONFERENCE PROCEEDINGS

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### *Refereed Publications and Conference Papers:*

1. **Saxe, J.P.** (October 2023) A model for improving stakeholder-focused communication in undergraduate civil engineering. Middle Atlantic ASEE Section Fall 2023 Conference.
2. **Saxe, J.P.** (online April 2022, included in October 2023 Justice40 Initiative Special Issue) The intersection of incarceration and injustice: environmental burdens in prison communities. *Environ. Justice*.  
<https://doi.org/10.1089/env.2021.0083>
3. **Saxe, J. P.** (April 2021) Teaching empathy through a stakeholder-focused engineering communications course. Paper presented at Middle Atlantic ASEE Section Spring 2021 Conference, Virtual. <https://peer.asee.org/36321>
4. Sajjadi B., Chen W.-Y., Fan M., Rony A., **Saxe J.**, Leszczynski J., Righetti T.K. (2021) A Techno-Economic Analysis of Solar Catalytic Chemical Looping Biomass Refinery for Sustainable Production of High Purity Hydrogen. *Energy Convers. Manag.*, 243, 114341. <https://doi.org/10.1016/j.enconman.2021.114341>
5. **Saxe J.P.**, Boman J.H. & Righetti T.K. (2021) Green reentry: criminal justice reform for a just energy transition. *SN Soc Sci* 1, 101. <https://doi.org/10.1007/s43545-021-00127-4>
6. Boman IV, J.H., Smith, A.J., **Saxe, J.**, Righetti, T., Rony, A., Fan, M., and Mowen, T.J. (2020) Carbon Capture, Employment, and Coming Home from Prison. *Deviant Behav.* <https://doi.org/10.1080/01639625.2020.1783160>
7. **Saxe J.P.**, Boman IV, J.H., Bondi, M., Norton, U., Righetti, T.K., Rony, A.H., and Sajjadi, B. (2019) Just or bust? Energy justice and the impacts of siting solar pyrolysis biochar production facilities. *Energy Res. Soc. Sci.*, 58 (December) 101259. <https://doi.org/10.1016/j.erss.2019.101259>
8. Impellitteri C., **Saxe J.P.**, Schmitt E.C., and Young, K.R. (2011) A survey on the temporal and spatial distribution of perchlorate in the Potomac River. *J. Environ. Monit.*, 13, 2277-2283.  
<https://pubs.rsc.org/en/content/articlelanding/2011/EM/c0em00678e>
9. **Saxe J.P.**, Lubenow B.L., Chiu P.C., Huang C.-P., and Cha D.K. (2006) Enhanced Biodegradation of Azo Dyes using an Integrated Elemental Iron Pretreatment-Activated Sludge System I: Evaluation of Integrated Treatment System Performance. *Water Env. Res.* 78, 19-25. <https://www.jstor.org/stable/25045937>
10. **Saxe J.P.**, Lubenow B.L., Chiu P.C., Huang C.-P., and Cha D.K. (2006) Enhanced Biodegradation of Azo Dyes using an Integrated Elemental Iron - Activated Sludge System II: Effect of Physical Chemical Parameters. *Water Env. Res.* 78, 26-30. <https://doi.org/10.2175/106143005X84486>

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11. **Perey J.R.**, Chiu P.C., Huang C.-P. and Cha D.K. (2002) Zero Valent Iron Pretreatment for Enhancing the Biodegradability of Azo Dyes. *Water Env. Res.* 74,221-225. <https://doi.org/10.2175/106143002X139938>
12. **Perey J.R.**, Oh S.-Y., Lubenow B.L., Cha D.K., Chiu P.C. and Huang C.-P. (2001) Enhancing Biodegradability of Refractory Aromatics: Pretreatment with Elemental Iron. in: *Ex Situ Biological Treatment Technologies: The Sixth International In Situ and On Site Bioremediation Symposium*. p. 149-155. Battelle Press, Columbus.
13. **Perey J.R.**, Cha D.K., Fuhrman, JJ (2000) Monitoring nitrifying microbial communities in wastewater treatment processes: application of fatty acid analysis. *Proc. Water Env. Fed.* 13, 574-584.

*Reports and Book Chapters:*

1. Message Mapping for Enhanced EV Adoption in Delaware (2023). Developed pursuant to DeIDOT RFP 2020-2022, FY22 Research Program Proposal (Problem Statement 8). *Co-authors: Catherine Gilman and Sophia Talley.*
2. Saxe J.P. (2022) A Light Bulb Moment for Cities: Opportunities to Improve Residential Energy Efficiency Outreach. In: Lackner M., Sajjadi B., Chen WY. (eds) *Handbook of Climate Change Mitigation and Adaptation*. Springer, New York, NY. [https://doi.org/10.1007/978-3-030-72579-2\\_173](https://doi.org/10.1007/978-3-030-72579-2_173)
3. Alternate Uses of Scrap Tires (2020). Developed pursuant to a Collaborative Agreement between the University of Delaware's Delaware Environmental Institute (DENIN) and the Delaware Department of Natural Resources and Environmental Control (DNREC). *Co-author: Hannah Kirk, DENIN Scholar.*

## RECENT PRESENTATIONS

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*Invited:*

- 2022 *DENIN Fall 2022 Seminar Series*  
 Title: Incarceration and Injustice: Exploring Intersections between Environmental and Criminal Justice
- 2022 *Mini-workshop on Accra, Ghana: Urban Environments and Infrastructure*  
 Panelist: Open Topics - Solutions and Strategies
- 2021 *MIT Water: Water Policy Workshop*  
 Title: Building Bridges to Shared Understanding: Effective Communication in Civil and Environmental Engineering
- 2018 *New Jersey Institute of Technology: Department of Civil and Environmental Engineering*  
 Title: Stakeholder Perspective in Environmental Engineering

*Conference presentations:*

- 2023 *ASEE: Fall Mid-Atlantic Conference*  
 Title: A Model for Improving Stakeholder-focused Communication in Undergraduate Civil Engineering
- 2021 *ASEE: Spring Mid-Atlantic Conference*  
 Title: Teaching Empathy through a Stakeholder-Focused Engineering Communications Course
- 2019 *Southern School on Chemistry and Engineering*  
 Title: Sustainable Siting of Biochar Production Facilities

## AFFILIATIONS, MEMBERSHIPS, AND CERTIFICATIONS

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- 2023-present *The International Crime Prevention Through Environmental Design Association: Member*
- 2022 *The Recreational UAS Safety Test (TRUST): Embry-Riddle Aeronautical University*
- 2020-present *University of Delaware, Delaware Environmental Institute (DENIN): Affiliate*
- 2019-present *Association of Environmental Engineering & Science Professors (AEESP): Member*
- 2018-present *American Society of Civil Engineers (ASCE): Associate Member*
- 2017-present *American Society for Engineering Education (ASEE): Member*

## MEDIA

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July 18, 2023 | NCEES Engineering Education Award Announcement

Partnerships, Perseverance, and Progress: Overcoming the Challenge of the COVID-19 Pandemic to Rehabilitate Wells in Malawi ([LINK](#))

June 2, 2023 | Delaware Public Media

UD researchers to address transit access and equity in federally-funded SMARTER Center ([LINK](#))

May 9, 2023 | UDaily

Improving Mobility: UD researchers will contribute to federally-funded, multi-university efforts toward advancing equitable transportation solutions ([LINK](#))

May 3, 2023 | The Review

Newark's tap water: How safe is it to drink? ([LINK](#))

May 2, 2023 | Delaware Public Media

Port of Wilmington scrap tire yard uncleared nearly a year after DNREC order ([LINK](#))

October 21, 2022 | UDaily

Global Engineering: UD engineering students travel abroad to understand the complexities of solving international challenges ([LINK](#))

December 16, 2020 | UDaily

Finding New Uses for Scrap Tires: UD and Department of Natural Resources and Environmental Control collaborate ([LINK](#))

February 28, 2020 | UDaily

Undergraduate Research Opportunity on Scrap Tire Alternate Uses: Findings will help inform environmental policy ([LINK](#))