

# Graham Diedrich, MPP

M.S. Data Science Candidate,  
Michigan State University

+1 517-974-6046  
[diedgr@msu.edu](mailto:diedgr@msu.edu)  
[www.grahamdiedrich.com](http://www.grahamdiedrich.com)

## Education

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### Master of Science in Data Science

Aug 2023 – May 2025

Department of Statistics and Probability,  
Michigan State University, East Lansing, MI

- > Key Project: *Optimizing Brownfield Solar Redevelopment in Michigan*—created an interactive dashboard allowing users to weight variables influencing solar siting on brownfields, including zoning ordinances and distance to existing energy infrastructure
- > Graduate Certificate: Environmental and Social Systems Modeling
- > Graduate Certificate: Community Engagement

### Master of Public Policy

Aug 2021 – May 2023

Department of Political Science & Department of Economics,  
Michigan State University, East Lansing, MI

- > Capstone: *Who's Paying the Price? The Effects of Loosening Environmental Cleanup in Michigan*—evaluated 1990–2018 statutory changes to Michigan's cleanup program, finding 67% of components restricted
- > Graduate Specialization: Environmental Science and Policy
- > Graduate Certificate: College Teaching

### Bachelor of Arts in International Relations

Aug 2019 – Aug 2021

James Madison College,  
Michigan State University, East Lansing, MI

- > Focus Area: International Environmental Law

## Research Experience

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### Margaret A. Davidson Graduate Fellow

Aug 2024 – Present

Wells National Estuarine Research Reserve,  
National Oceanic and Atmospheric Administration, Wells, ME

- > **Project:** Developing an information flow and prioritization model to analyze how 11 local governments, state and federal agencies, and non-profits in southern Maine integrate reserve science to enhance coastal resilience decision-making
  - Creating a stakeholder engagement database of 340 contacts to support upcoming focus groups, and semi-structured interviews, and surveys
  - Planning participatory modeling sessions to facilitate collaborative decision-making and incorporate diverse stakeholder perspectives into the prioritization process
  - Analyzing data from stakeholder engagement to refine the model, ensuring it aligns with local needs and scientific recommendations for coastal resilience

### Environmental Justice Fellow

Apr 2024 – Present

Virginia Working Landscapes,  
Smithsonian Conservation Biology Institute, Washington, DC

- > **Project:** Designing and distributing a statewide representative mail survey to 3,050 Virginia farmers
  - Met with 10-15 organizations, including state agencies, nonprofits, and farming interest groups, to iteratively develop the questionnaire

- Conducted an initial pilot survey online to inform the full survey, achieving a strong 54% response rate
  - Planning to develop reports for partners and a peer-reviewed publication based on survey findings
- > **Project:** Creating a first-of-its-kind underserved farmers index (UFI), consisting of 7 variables from the Census of Agriculture, to document underserved farming communities nationwide
- Utilizing data from the 2022 Census of Agriculture (COA), which includes detailed information on farm operators, land use, operator demographics, and financial conditions
  - Applied PCA to reduce dimensionality and extract dominant patterns from the data, with loadings used to calculate normalized weights for each variable to creating the composite index
  - Pursuing USDA collaboration and launching a publicly available data repository and web map viewer alongside a peer-reviewed publication in early 2025
- > **Project:** Determining whether underserved farming communities are predictive of restrictive renewable energy ordinances, with a focus on identifying equity implications
- Using the UFI as a key independent variable, assessed the relationship between county-level renewable energy ordinances (controlling for demographic and political factors at local and state levels)
  - Developed time-lagged logistic regression models, with two specialized to focus on wind and solar restrictions to capture differences
  - Preliminary results indicate that counties with a higher presence of underserved farmers are less likely to impose restrictions, particularly for wind energy (peer-reviewed paper incoming)
- > **Project:** Conducting a geospatial analysis in ArcGIS with Landsat and Sentinel imagery to assess land-use and biodiversity impacts associated with utility-scale solar projects
- Planning to use spatial joins and regression analyses to examine the relationships between land use and biodiversity for solar projects across the U.S. and in Virginia
  - Collaborating with staff biologists on a joint publication

## DOE Scholars Fellow

Jun 2024 - Aug 2024

Office of Clean Energy Demonstrations,  
U.S. Department of Energy, Washington, DC

- > **Project:** Plotted locations of schools, businesses, and residences using ArcGIS Pro, layering these with climate and economic justice screening tool (CEJST) data
- Identified census tracts with disadvantaged status and measured proximity to EPA-regulated facilities to evaluate environmental justice risks and opportunities for mitigation
  - Created maps utilized to supported negotiations for community benefit plans (CBPs) for 33 industrial demonstrations projects across the U.S.
- > **Project:** Designed HTML code to automate an Excel document tracker used across multiple DOE divisions, streamlining and building efficiencies into a \$20 billion negotiations process
- Developed and tested automation scripts to integrate dynamic updates from Excel into the HTML interface
  - Implemented the system across DOE divisions, reducing manual input and improving transparency in negotiation workflows
- > **Project:** Examined ongoing CBP proposals influencing workforce development and funding allocations to determine diverging trends by industry type.
- Analyzed key variables, including workforce training initiatives, investment in local infrastructure, and support for disadvantaged communities
  - Results indicated no significant differences across projects or industry types, suggesting a consistent application of CBP principles

- Authored a report summarizing findings, which informed DOE strategies to standardize CBP expectations and enhance community outcomes

### **Graduate Research Assistant**

Oct 2021 – May 2024

Forest Carbon and Climate Program,  
Michigan State University, East Lansing, MI

- > **Project:** Assessed the impact of different forest management and policy scenarios by modeling the carbon sequestration impacts in forest ecosystems and harvested wood products (HWP)
  - Gathered trade data on timber and harvested wood products from USITC to capture imports/exports of HWP across states for emissions analysis
  - Parameterized three base models for California, Wisconsin, Michigan, and Minnesota using data from FIA on commodity production, retirement, and end-use, defining lifecycle flow networks
  - Collaborated with staff from American Forests, the Northern Institute of Applied Climate Science, and the Canadian Forest Service Carbon Accounting Team to write R code integrating ecosystem model results, inputting them into HWP models, and running simulations
- > **Project:** Developed and led a state policy-tracking initiative with \$50,000 in support from the Environmental Defense Fund
  - Created the conceptual framework, grouping policies into key areas: GHG emissions and energy, direct financial incentives, forest management and land use, and public procurement
  - Systematically reviewed statutory laws, administrative rulings, regulations, and program websites for 16 state-level policies impacting forests' climate role
  - Utilized STATA and R for comparative legislative analyses
  - Developed an interactive, 70 column database and maps for 50 states
  - Produced 8 white papers and a peer-reviewed publication (in progress)
- > **Project:** Led a \$12,000 funded analysis on the relationship between voluntary carbon markets and preferential tax programs in 9 states
  - Conducted 35 qualitative interviews to assess program compatibility, focusing on harvest requirements
  - Delivered a comprehensive 68-page report detailing results from qualitative interviews and policy analysis
  - Led to an advanced understanding of legal, administrative, and operational contexts affecting carbon offset projects and preferential tax treatment programs
  - Invited to join a policy round table discussion and working group at the U.S. Forestry Service

### **Catalyst Leadership Circle Fellow**

May 2023 – Aug 2023

Graham Sustainability Institute,  
University of Michigan, Ann Arbor, MI

- > **Project:** Developed 2 community-guided greenhouse gas inventories for Grand Haven, MI, and Rockford, MI
  - Led a team consisting of 5 planning staff to gather data on electricity, transportation, water, waste, and other emissions sectors
  - Coordinated with utilities, government departments, water facilities, and waste management companies to collect emissions data across sectors
  - Modeling emissions for calendar year 2022 using ICLEI ClearPath and the EPA GHG Tool in accordance with the Greenhouse Gas Protocol
  - Presented findings on decarbonization and environmental justice to the public and city councils
  - Published 2 individualized emission reports for each city to assist in initial sustainability plan development

## Teaching & Advising

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### **Bailey Scholars Program Graduate Fellow**

Apr 2024 – Present

College of Agriculture and Natural Resources  
Michigan State University, East Lansing, MI

- > Co-facilitating 2 undergraduate courses, ANR 210 and ANR 310, through dialogue and discussion
- > Providing feedback on 4 multimodal assignments to 15 students, instructing them in self-reflection, peer-review practices, and collaborative learning

### **Graduate Coordinator & Consultant**

Jan 2023 – Present

The Writing Center @ MSU, East Lansing, MI

- > Conducting in-person and virtual writing consultations and collaborating with clients to enhance their writing skills and address specific concerns
- > Offering generative feedback, support, and resources aligned with Writing Center pedagogy, fostering an environment that encourages continuous improvement in writing proficiency
- > Offering individualized writing support to 100-200 undergraduate and graduate students, leading to greater confidence in written communication
- > Event planning and advisory support for 15-20 undergraduate consultants, resulting in increased engagement and professional development opportunities for staff

### **Public Policy Learning Assistant**

Jan 2022 – May 2023

Department of Political Science,  
Michigan State University, East Lansing, MI

- > Graded assignments and provided lectures on environmental policy for 4 undergraduate sections, PLS 422 and PLS 494, as part of the Michigan Government Semester Program
- > Improved student comprehension of environmental legislation by 14% compared to pre-testing levels

## Publications

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**Diedrich, G.** (2025). Mapping historically underserved farmers and ranchers: A national underserved farmer index. (manuscript in submission)

**Diedrich, G.** & Clay, K. (2025). Navigating dual enrollment: Assessing compatibility between forest carbon offset projects and preferential property tax programs across nine states. (manuscript in progress)

**Diedrich, G.** (2024). Evaluating local climate policy: Municipal action plans through the lens of resilience and environmental justice. *PLoS Climate* 3 (1): e0000395. <https://doi.org/10.1371/journal.pclm.0000395>.

**Diedrich, G.** (2024). Evaluating Community Benefits: Trends in Job Creation and Funding Metrics for the Industrial Demonstrations Program. Office of Clean Energy Demonstrations, U.S. Department of Energy. Washington, D.C. [https://www.grahamdiedrich.com/files/ugd/e8d0f3\\_d001e4c0a29d4964bfadcc6783ba26fe.pdf](https://www.grahamdiedrich.com/files/ugd/e8d0f3_d001e4c0a29d4964bfadcc6783ba26fe.pdf).

**Diedrich, G.** & Clay, K. (2023). Forest Preferential Property Tax Programs and Carbon Project Compatibility: An assessment of program compatibilities across nine states. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://doi.org/10.5281/zenodo.10680874>.

**Diedrich, G.** (2023). From Data to Action: Harnessing GHG Inventories for Local Sustainability Initiatives. U-M Graham Sustainability Institute. Ann Arbor, MI. <https://graham.umich.edu/media/files/CLCF-2023-Diedrich-Report.pdf>.

- Diedrich, G.** (2023). Embodied Carbon Policies. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/resources/embodied-carbon-policies>.
- Diedrich, G.** (2023). State Forest Certification. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/resources/state-forest-certification>.
- Diedrich, G.** (2023). State Cap-and-Trade Programs. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/resources/state-cap-and-trade-programs>.
- Diedrich, G.** (2023). State-Level Forest BMPs. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/resources/state-level-forest-bmps>.
- Kreye, M., Clay, K., Chizmar, S., Cooper, L., **Diedrich, G.**, Gadoth-Goodman, D., Parajuli, R., Sutton, A. (2023). Forest Carbon Market Structures and Mechanism. Forest Owner Carbon and Climate Education Program. East State College, PA. <https://extension.psu.edu/forest-carbon-market-structures-and-mechanisms>.
- Diedrich, G.** (2023). Who's Paying the Price? The Legacy of the Part 201 Program in Michigan. East Lansing, MI. [https://www.grahamdiedrich.com/\\_files/ugd/e8d0f3\\_5db37b22ac4942c1ae64f1954a795c74.pdf](https://www.grahamdiedrich.com/_files/ugd/e8d0f3_5db37b22ac4942c1ae64f1954a795c74.pdf).
- Halle, B., **Diedrich, G.**, Lee, S. (2022). Willingness to Pay for Renewable Energy in East Lansing. East Lansing, MI. [https://www.grahamdiedrich.com/\\_files/ugd/e8d0f3\\_83c66fc1e75f4d10b6472834c5364265.pdf](https://www.grahamdiedrich.com/_files/ugd/e8d0f3_83c66fc1e75f4d10b6472834c5364265.pdf).
- Diedrich, G.** (2022). An Impact Evaluation Proposal: Oregon's 'Cap-and-Trade' Climate Protection Program. MSU Forest Carbon and Climate Program. East Lansing, MI. [https://www.grahamdiedrich.com/\\_files/ugd/e8d0f3\\_0c0f1d476d614ba0934635f4118b2522.pdf](https://www.grahamdiedrich.com/_files/ugd/e8d0f3_0c0f1d476d614ba0934635f4118b2522.pdf).
- Diedrich, G.** (2022). How will the Inflation Reduction Act impact forest and carbon management? MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/news/how-will-the-inflation-reduction-act-impact-forest-and-carbon-management>.
- Diedrich, G.** (2022). How will the 2021 Infrastructure Investment and Jobs Act impact forests and climate? MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/news/how-will-the-2020-infrastructure-investment-and-jobs-act-impact-forests-and-climate>.
- Diedrich, G.** (2022). Carbon Pricing: Carbon Markets and Carbon Taxes. MSU Forest Carbon and Climate Program. East Lansing, MI. <https://www.canr.msu.edu/fccp/FCCP-ORL/Carbon%20Pricing%20-%20Carbon%20Markets%20and%20Carbon%20Taxes.pdf>.
- [Access publications by visiting <https://www.grahamdiedrich.com>.]

## **Datasets**

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- Diedrich, G.** (2024). Underserved Farmers Index. Self-published. <https://www.grahamdiedrich.com/data/ufi>.

## **Conference Presentations**

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- Diedrich, G.** (2024). Mapping the Disparities: A National Index of Historically Underserved Farmers Using PCA. Presentation at the *2024 Data Science Student Conference* (November 15, 2024). East Lansing, MI.
- Diedrich, G.** (2024). The Race for Renewables: Modeling Renewable Energy Productivity Amid Local Siting Restrictions in Michigan. Presentation at the *Michigan State University Environmental Science and Policy Program Fall Research Symposium* (October 11, 2024). East Lansing, MI.

**Diedrich, G.** (2024). Charting Climate Confidence through Institutional Trust in European Governments. Presentation at the 5<sup>th</sup> *International European Social Survey Conference* (July 8-10, 2024). Lisbon, Portugal.

**Diedrich, G.** (2023). Assessing the Interplay between State Climate Plans and the SDGs: A Case Study in the Great Lakes Region. Presentation at the *Michigan State University Environmental Science and Policy Program Fall Research Symposium* (October 27, 2023). East Lansing, MI.

**Diedrich, G.** (2023). Who's Paying the Price? The Legacy of the Part 201 Program in Michigan. Presentation at the *2023 Michigan Political Science Association Conference* (October 20, 2023). Flint, MI.

**Diedrich, G.** (2023). Building Resilient Communities: The Intersection of Climate Change, Local Governance, and Environmental Justice. Presentation at the *2023 Engagement Scholarship Consortium International Conference* (October 4-5, 2023). East Lansing, MI.

**Diedrich, G.** (2023). Advancing Environmental Justice in Local Government: A Path Towards Justice and Effective Policymaking. Presentation at the *2023 Michigan Environmental Justice Conference* (June 21, 2023). Detroit, MI.

**Diedrich, G.** (2022). Forests as a Climate Solution: State Policy Tracking Initiative. Presentation at the *Michigan State University Environmental Science and Policy Program Fall Research Symposium* (October 16, 2022). East Lansing, MI.

## Certifications

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**Graduate Certificate in Environmental and Social Systems Modeling** May 2025  
Michigan State University, East Lansing, MI

- > **Topics:** Environmental modeling, agent-based modeling, system dynamics modeling, participatory model-building, hierarchical linear modeling, and structural equation modeling

**Graduate Certificate in Community Engagement** May 2025  
Michigan State University, East Lansing, MI

- > **Topics:** Foundations of community engaged scholarship, techniques for community engaged research, evaluation of community partnerships, communicating with publics

**Graduate Certificate in College Teaching** Apr 2023  
Michigan State University, East Lansing, MI

- > **Topics:** Developing discipline-related teaching strategies, creating effective learning environments, assessing student success

**Inclusive Teaching Certificate** Jan 2022  
Columbia University, New York, NY

- > **Topics:** Inclusive course climate, setting explicit expectations, promoting diversity and inclusion, course accessibility, cultivating critical self-reflection

## Technical Skills

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- > **Programming:** Python, R, SQL, C; Libraries/Packages: NumPy, Pandas, Seaborn
- > **Data & Analysis Software:** ArcGIS, Stata, Jupyter Notebook, ICLEI ClearPath, Tableau, Low Emissions Analysis Platform (LEAP)
- > **Techniques:** Policy analysis and evaluation; qualitative coding (inductive and deductive); survey design and administration (online and mail); GIS and geo-spatial mixed modeling

## Fellowships, Grants, & Awards

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<b>Margaret A. Davidson Graduate Fellowship</b> Office for Coastal Management, National Oceanic and Atmospheric Administration	Aug 2024
<b>DOE Scholars Program Fellowship</b> Office of Clean Energy Demonstrations, U.S. Department of Energy	Jun 2024
<b>2024 NatSci Awesome Graduate Student Award</b> College of Natural Science, Michigan State University	May 2024
<b>Life on a Sustainable Planet Environmental Justice Fellowship</b> Center for Environmental Justice, Smithsonian Institution	Apr 2024
<b>Bailey Scholars Program Fellowship</b> College of Agriculture and Natural Resources, Michigan State University	Apr 2024
<b>US Fulbright Scholars Research Award</b> Institute of International Education	Mar 2024
<b>Competitive Student Research Grant</b> Environmental Science and Policy Program, Michigan State University	Mar 2024
<b>Student Research Symposium Best Presentation Award (Runner-Up)</b> Environmental Science and Policy Program, Michigan State University	Dec 2023
<b>National Science Foundation STEM Ambassador Program</b> Outreach and Engagement Office, Michigan State University	Sep 2023
<b>MSU Cloud Computing Fellowship</b> Institute for Cyber-Enabled Research, Michigan State University	Aug 2023
<b>Catalyst Leadership Circle Fellowship</b> Graham Sustainability Institute, University of Michigan	May 2023
<b>Public Policy Learning Assistant Scholarship</b> Department of Political Science, Michigan State University	Jan 2022, Jan 2023
<b>Tom Schneider Peace Award</b> Peace Education Center	May 2019

## Community & University Service

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<b>Environmental Commissioner</b> Government of Meridian Township	Feb 2023 - Present
> Producing a municipal sustainability plan with other elected broad members	
<b>Student Committee Lead</b> ESPP Fall Research Symposium, Michigan State University	Aug 2023 - Oct 2023
<b>Conference Reviewer</b> Engagement Scholarship Consortium	April 2023