Shuang Zhao

Associate Professor of Political Science · The University of Alabama in Huntsville
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RESEARCH INTERESTS

Energy and climate policy; grid resilience and power outages; environmental justice; green buildings and schools; state environmental policymaking; data analytics for public policy; policy evaluations.

Education

Joint Ph.D. in Public Policy, Indiana University, Bloomington, IN, July 2015

Dissertation: Private Environmental Practices and Public Policy: The Emerging Role of Supply Chain Management in Business Decision-Making

Committee: Douglas Noonan (Chair), Sanya Carley, Daniel Cole, Michael McGinnis

Major Fields: Environmental Policy, Public Policy, International Relations

Master of Public Affairs, The University of Texas at Austin, August 2008

B.A. in Economics, Beijing Technology and Business University, June 2006

Academic Appointments

Associate Professor (tenured), Department of Political Science, The University of Alabama in Huntsville, 2023 – present

Sabbatical leave, Fall 2025

Assistant Professor, Department of Political Science, The University of Alabama in Huntsville, 2015 – 2023 (joint appointment with the Department of Atmospheric Science, 2015 – 2020)

Affiliate Graduate Faculty, College of Nursing, The University of Alabama, Tuscaloosa, 2023 – present

Affiliated Faculty, Ostrom Workshop, Indiana University Bloomington, 2015 – present

Research Fellow, Center for Organization Research and Design (CORD), Arizona State University, 2015 – present

Adjunct Assistant Professor, Department of Environmental Health Sciences, School of Public Health, The University of Alabama at Birmingham, 2017 – present

Publications

*† denotes student co-author; * denotes corresponding author.*

Peer-Reviewed Journal Articles

Yan, M., Fu, C., Du, H., Conlon, D., **Zhao, S**., Chen, R., Nogueira de Melo, S., Li, Y., & Xu, Y. (2026). Protector or provocateur? Analysis of U.S. overseas military bases and terrorism. *Applied Geography*, *194*, 104123. https://doi.org/10.1016/j.apgeog.2026.104123

Soto-Jiménez, M. F., Jaffer, E., **Zhao, S**., Soto-Morales, S., Roos-Muñoz, S., & Morton-Bermea, O. (2026). Sustained airborne lead exposure in an arid city: The roles of legacy emissions, meteorology, and topographic trapping in Torreón, Mexico. *Air Quality, Atmosphere & Health*, *19*(6), 131.

Soto-Jiménez, M. F., **Zhao, S**., Jaffer, E., & Jocobi-Aguilar, C. L. (2026). Atmospheric dry and lead deposition in an arid Mexican city: Legacy of smelting and leaded gasoline. *Archives of Environmental Contamination and Toxicology*, *90*(3), 16. https://doi.org/10.1007/s00244-026-01184-7

Amiri, A., Dong, X., Amiri, A., **Zhao, S.,** & Fox, M. (2026). Total toxic releases from electric utilities and mining facilities and their relationships with human health in the United States. *Air*, *4*(2), 11.

Stone, B., Amiri, A., **Zhao, S**., Hamidi, S., Johnson, P., & Bruns, D. (2025). Food insecurity, walkability, and social determinants of health: A cross-sectional, county-level study of associations with maternal and infant mortality in the United States. *Healthcare*, *13*(19), 2407. https://doi.org/10.3390/healthcare13192407

Glasgow, D., Rai, S., **Zhao, S**., Taylor, J., & Haider-Markel, D. P. (2025). Beyond group membership: New way of measuring environmental interest group strength in the American states. *State Politics & Policy Quarterly*, *25*(2), 237–259. https://doi.org/10.1017/spq.2024.30

Glasgow, D., **Zhao, S**., & Rai, S. (2021). Rethinking climate change leadership: An analysis of the ambitiousness of state GHG targets. *Review of Policy Research*, *38*(4), 398–426. https://doi.org/10.1111/ropr.12428

Zhao, S., Zhou, S., & Noonan, D. (2019). Environmental justice and green schools—Assessing students and communities' access to green schools. *Social Science Quarterly*, *100*(6), 2223–2239. https://doi.org/10.1111/ssqu.12715

Amiri, A., & **Zhao, S.** (2019). Environmental justice screening tools: Implications for nursing. *Public Health Nursing*, *36*(3), 411–421. https://doi.org/10.1111/phn.12593

Castner, J., Amiri, A., Rodriguez, J., Huntington-Moskos, L., Thompson, L. M., **Zhao, S.,** & Polivka, B. (2019). Advancing the symptom science model with environmental health. *Public Health Nursing*, *36*(5), 716–725. https://doi.org/10.1111/phn.12641

Amiri, A., & **Zhao, S.** (2019). Working with an environmental justice community: Nurse observation, assessment, and intervention. *Nursing Forum*, *54*(2), 270–279. https://doi.org/10.1111/nuf.12327

Kaulfus, A., Alexander, S., **Zhao, S.,** O'Keefe, L., Oster, R., & Bartlucci, A. (2017). The inherent challenges of using large data sets in healthcare research: Experiences of an interdisciplinary team. *Computers, Informatics, Nursing: CIN*, *35*(5), 221–225. https://doi.org/10.1097/CIN.0000000000000359

Glasgow, D., & **Zhao, S.** (2017). Has the Clean Air Interstate Rule fulfilled its mission? An assessment of federal rule-making in preventing regional spillover pollution. *Review of Policy Research*, *34*(2), 186–207. https://doi.org/10.1111/ropr.12225

Chan, K. N., & **Zhao, S.** (2016). Punctuated equilibrium and the information disadvantage of authoritarianism: Evidence from the People's Republic of China. *Policy Studies Journal*, *44*(2), 134–155. https://doi.org/10.1111/psj.12138

Peer-Reviewed Conference Proceedings

Cai, D., **Zhao, S.***, Fan, C., Shi, D., & Wang, F. (2026). Spatiotemporal drivers of U.S. power grid reliability: A decade-scale machine learning attribution (2015–2024). In *Proceedings of the 2026 IEEE 14th International Conference on Smart Energy Grid Engineering (SEGE)* (pp. 44–49). IEEE.

Book Chapter

Zhao, S., & Kennedy, S. (2012). China's frustrating pursuit of market economy status: Implications for China and the world. In S. Kennedy & S. Cheng (Eds.), *From rule takers to rule makers: The growing role of Chinese in global governance*. Research Center for Chinese Politics and Business (RCCPB) & International Centre for Trade and Sustainable Development (ICTSD).

Manuscripts Under Review and in Preparation

Cai, D., Fan, C., **Zhao, S.**, Shi, D., Wang, F., Xue, L., Zhang, Y., & Wang, C. Intensifying high-impact power outages coincide with shifting climate–outage relationships across the United States [Manuscript submitted for publication, October 2026; under review at *Communications Earth & Environment*].

Zhao, S., Hayes, B.†, Meyer, N.†, & Cai, D. The impact of renewable energy policy on renewable energy adoption across the 50 U.S. states [Manuscript in preparation; to be submitted to *Energy Policy*].

Research in Progress

Energy equity and power outages: Identifying the communities most affected by power outages in the United States (NSF EPSCoR DigiCARES project).

Solar energy deployment, policy incentives, and local community benefits: Where and how solar capacity is deployed, how deployment responds to incentives, and how it benefits local communities (NSF EPSCoR DigiCARES project).

Barriers to equitable influence: Examining geographic access to environmental justice organizations. County-level analysis of geocoded National Center for Charitable Statistics (NCCS) data and census data on the prevalence of environmental justice nonprofits by community race and income.

Conference Presentations

Hayes, B.†, Meyer, N.†, & **Zhao, S.** (2026, January). *The impact of state-level policies on renewable energy adoption* [Paper presentation]. Southern Political Science Association Annual Conference.

Zhou, S., Zhao, S., & Noonan, D. (2019, November). *Why do schools go green? Assessing policy impacts on green school building adoption in the United States* [Paper presentation]. Association for Public Policy Analysis & Management Annual Research Conference.

Zhao, S., Zhou, S., & Noonan, D. S. (2018, November). *Environmental justice and green schools—Assessing students and communities' access to green schools* [Paper presentation]. Association for Public Policy Analysis & Management Annual Research Conference.

Glasgow, D., Zhao, S., & Rai, S. (2017, January). *Livin' on a prayer? Gauging the effectiveness of state GHG emission reduction policies* [Paper presentation]. Southern Political Science Association Annual Conference.

Zhao, S., & Glasgow, D. (2016, January). *Do regulators allow bordering facilities to emit more air pollution? An empirical assessment of the interstate free riding problem* [Paper presentation]. Southern Political Science Association Annual Conference.

Zhao, S., & Noonan, D. (2015, November). *Assessing the equity of access to green buildings: LEED-certified schools and libraries, their surrounding neighborhoods, and who owns them* [Paper presentation]. Association for Public Policy Analysis and Management Annual Research Conference.

Zhao, S. (2014, April 17–19). *Environmental regulation, globalization and the adoption of green supply chain management* [Paper presentation]. Western Political Science Association Annual Meeting, Seattle, WA.

Invited Talks

Zhao, S. (2024, May). *Environmental justice in green building and green schools* [Invited talk]. Getting to Zero Forum, New Buildings Institute, Charlotte, NC.

Zhao, S., & Heming, A. (2020, October). *Green school & social equity: Understanding effective green school advocacy* [Invited talk]. U.S. Green Building Council (USGBC) Equity Summit, virtual.

Zhao, S. (2018). *Challenges of dealing with data registries* [Invited presentation]. Keryx Biopharmaceuticals Annual Sessions.

Zhao, S. (2012, October 29). *China–U.S. relations: Opportunities and challenges* [Invited talk]. 6th Annual China Town Hall, National Committee on United States–China Relations and East Asian Studies Center, Indiana University Bloomington.

Research Funding

Total external research funding as PI, Co-PI, or Co-I: approximately $7.5 million.

External Awards

- "Accelerating Community-Centric Energy Transformation through AI-Driven Digital Twinning for Climate-Aware Resilience (DigiCARES)," NSF EPSCoR RII Track-2 FEC, 2024 – 2028, Co-PI and UAH Institutional PI, $6,000,000 total award over four years ($800,000 UAH subaward). Four-state collaborative award led by New Mexico State University (PI: Di Shi) with Montana State University, Oklahoma State University, and UAH; UAH leads the project's Environmental Justice Database.
- "Gulf Resiliency Initiative for Undergraduates (GRIU)," Gulf Scholars Program, National Academies of Sciences, Engineering, and Medicine, 2024 – 2029, Co-PI, $549,950.
- "Development of a community-centric blueprint to reduce life expectancy inequities in Alabama neighborhoods based on critical social and built environmental determinants of health," Bloomberg American Health Initiative, 2023 – 2024, Co-PI, $25,000.
- "Social Economic Background's Role in Children's Immune System Development," iRepertoire, Inc. (industry-sponsored research), 2019, PI, $100,000.
- "Use of Remote Sensing Data to Improve Air Quality Decision Support Systems Used to Protect Public Health," NASA Earth Science Division, 2019 – 2021, Co-I, $870,753.
- "Development of pediatric health survey specific to environmental justice communities with illiteracy and low health literacy," Society of Pediatric Nurses, 2018, $2,499.
- "Raising lead poisoning awareness in Uniontown, Alabama," National Center for Healthy Housing small grant (supported by the Trust for America's Health, The Pew Charitable Trusts, and the Robert Wood Johnson Foundation), 2017, Co-PI, $5,000.

Internal Awards, The University of Alabama in Huntsville

- Individual Investigator Distinguished Research (IIDR) Award, "Coupled Human-Natural System Approach for Urban Studies," 2018, Co-PI, $49,990.
- Individual Investigator Distinguished Research (IIDR) Award, "Data Analytics Laboratory for Interdisciplinary Research and Applications," 2018, Co-PI, $49,661.
- Research Infrastructure Fund (RIF), "Studying indoor air chemical mixtures and modeling exposures," 2018, Co-PI, $45,529.
- Research Infrastructure Fund (RIF), "Installation of a modular controlled room in the College of Nursing for measuring additive and interactive reactions between indoor air pollutants," 2018, Co-PI, $9,655.
- Cross-College Grant for Research (CCFR), "Phytoremediation's Role in Reducing Indoor Air Pollutants' Impact on Children's Health," 2017, Co-PI, $5,000.

- New Faculty Research Award, "Assessing the Role of Green Buildings in Reducing School Children's Exposure to Fine Particulate Matter," 2016 – 2017, PI, $10,000.

Honors & Awards

- DEI Policy Advocacy Award, Chinese Policy Scholars Program, 2024
- Ronald Coase Institute Fellowship, 2015
- China Graduate Student Research Award, 2015
- Indiana University Graduate Student Exchange Award, 2015
- East Asian Studies Center Grant, 2013, 2014, 2015
- Indiana University Bloomington Fellowship, 2009 - 2015
- ANU-IU Pan Asia Institute (PAI) Travel Grant, 2012
- LBJ Professional Development Funding, 2007
- William H. Crook fellowship in Global Affairs, the Robert S. Strauss Center for International Security and Law, 2008

Teaching

Graduate and Cross-Listed Graduate Courses, The University of Alabama in Huntsville

- PSC 635 Program Evaluation and Research Methods, 2015 – 2024 (redesigned and delivered fully online beginning Fall 2020)
- PSC 462/562 National Security Strategy and Policy, 2022, 2023 (new course)
- PSC 470/570 Issues in National Security and Foreign Policy Making, 2022 (new course)
- PSC 466/566 American Foreign Policy, 2022 (cross-listed with History as American Foreign Relations since 1920)
- ESS 407/507 and PSC 480/580 Environmental Threat, Decision Making, and Public Policy, 2016 – 2021 (cross-listed with Earth System Science)
- PSC 480/580 Statistics for Political Science Majors, 2016, 2017

Undergraduate Courses, The University of Alabama in Huntsville

- PSC 260 Introduction to International Relations, 2015 – 2026 (Honors College section redesigned with environmental treaty negotiation and Model UN simulations; fully online section developed in 2020)
- PSC 240 Contemporary Chinese Politics, 2026 (first offered as PSC 480/580 special topics, 2024)
- PSC 480 Senior Seminar, 2023
- PSC 300 Introduction to Social Statistics, 2018 – 2020 (redesigned from the 400/500-level statistics course as a 300-level course open to all colleges)
- PSC 399 Current Affairs, 2019 (new course)
- PSC 102 Introduction to American Government, 2016, 2017

Indiana University Bloomington, School of Public and Environmental Affairs

- SPEA K300 Introduction to Statistical Techniques, 2011 – 2014
- SPEA E162 Environment and People, 2010, 2015

Course Development and Pedagogy

- Developed four new courses in national security and foreign policy (PSC 462/562, PSC 470/570, PSC 446/546, PSC 399) and the department's 300-level social statistics course
- Completed UAH Quality Enhancement for Online Programs (QEPO) certification, 2020; converted PSC 635 and PSC 260 to fully online, module-based formats
- Integrated policy simulations (Model UN, Senate floor debate, bill drafting, party-platform exercises) across introductory and upper-level courses

Mentoring and Advising

Doctoral Students

- Mohammed Taufeeq, Ph.D. student, Industrial and Systems Engineering, UAH, research mentor, 2025 – present

Master's Theses

- Chair: Manoj Paranthaman, M.S. thesis, 2018 – 2019
- Committee member: Seth Porter (2016), Tyler Finley (2016), Leigh Sinclair (2017)
- Directed readings in environmental justice: Haley Hix (MPA), 2016

MPA Capstone Projects

- Chaired and supervised to completion the capstone projects of five MPA students, 2024 (final graduating cohort before the program was sunset)

Undergraduate Honors and Capstone Projects Supervised

- Allison Daniel (2016; environmental health disparities; secured funding to present at the American Geophysical Union annual meeting)
- Delaney Humphrey (2017; Russia's energy policy; Honors College undergraduate research funding; poster at UAH Research Horizons Day)
- Miles Davis (2018; GIS mapping of pollution sources in Alabama)
- Cristina Smith (2018 – 2020; capstone developed into a manuscript submitted to the Journal of Public Health Policy)
- Rebecca Patton (2020 – 2021; capstone revised for journal submission)
- Jaxon Tolbert (2022 – 2023; Honors capstone in partnership with the City of Huntsville)
- Kristian Erskine, Abigail Nkansah, and Roxie Hipps (2023)

Undergraduate Research Assistants and Student Co-Authors

- Braeden Hayes and Nick Meyer, 2025 – present (renewable energy policy database; co-authors on the Energy Policy manuscript; secured funding for, and mentored, their presentation at the Southern Political Science Association annual conference)
- Undergraduate researchers supported through the Gulf Resiliency Initiative for Undergraduates and DigiCARES, 2024 – present
- Charlotte Ashley Cain, 2015 – 2016 (co-presented at the Midwest Political Science Association annual conference); Elizabeth Clifton, 2017 (GIS analysis, green schools project); Manoj Paranthaman, 2017 (Uniontown, Alabama, environmental sampling and health surveys)

Visiting Scholars Sponsored

- Martín F. Soto-Jiménez, 2019 (ongoing collaboration; two co-authored articles, 2026)

Professional and University Service

Grant Proposal Review

- Panel reviewer, U.S. Environmental Protection Agency, "Environmental Impacts and Behavioral Drivers of Deep Decarbonization" research funding program, 2017 (31 proposals; three-day interdisciplinary panel)

Manuscript Review

- Reviewer for Policy Studies Journal, Regulation & Governance, Politics & Policy, and Policy & Politics, 2016 – present
- Textbook reviewer, American Government: Roots and Reform (2016 Presidential Election edition), 2017

University Service

- Host and local organizer, DigiCARES Annual Project Meeting (four-state NSF EPSCoR consortium), UAH, August 27–29, 2026
- Undergraduate Student Curriculum Committee, UAH, 2018 – 2019
- Faculty search participant, Eminent Scholar in Global Studies, Department of Political Science, 2018
- Research presentations, CAHSS RELACS Speaker Series (2016) and Atmospheric Science Seminar Series (2017), UAH

Professional Memberships

- American Political Science Association; Association for Public Policy Analysis and Management; Midwest Political Science Association, 2015 – present

Consulting

- iRepertoire, Inc., Huntsville, AL: designed a research strategy and secured IRB approval for applying immune-repertoire sequencing technology to social-science research on childhood health disparities

Methods and Technical Skills

Quantitative policy analysis and program evaluation; GIS and spatial analysis; remote-sensing and large administrative datasets; machine-learning attribution methods. Software: GIS, SPSS, R, and Stata

Languages

Chinese (Mandarin, native); English (fluent)

Public Scholarship and Community Engagement

President, The Huntsville Chinese Association, 2024 – present

Board member, The Huntsville Chinese Association, 2023 – present

Vice President, The Yick Wo Institute, 2023 – present, https://www.yickwo-institution.org/

Board member, Alabama Leadership, 2023 – present

"Guest opinion: Sunday was a sad Mother's Day for Chinese Alabamians," May 18, 2023. https://www.al.com/opinion/2023/05/guest-opinion-sunday-was-a-sad-mothers-day-for-chinese-alabamians.html