JULIA CARDWELL

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CURRENT POSITION

University of North Carolina at Chapel Hill
Department of Geography & Environment
Teaching Assistant Professor in Spatial Data Science   *Jan 2025 -*

EDUCATION

Ph.D., Geography & Environment   *Dec 2024*
University of North Carolina at Chapel Hill
  Dissertation: Navigating Disruptions: Examining Weather-Induced Road Closures and Structural Vulnerabilities in North Carolina's Road Network
  Committee: Dr. Charles Konrad (co-advisor), Dr. Paul Delamater (co-advisor), Dr. Conghe Song, Dr. Nikhil Kaza, Dr. Chris Fuhrmann

M.A., Geography   *Dec 2021*
University of North Carolina at Chapel Hill
  Thesis: Trends in Recovery Aid Concentration after Hurricane Florence in North Carolina
  Committee: Dr. Charles Konrad (advisor), Dr. Paul Delamater, Dr. Conge Song

B.A., Environmental Studies   *May 2019*
With Honors, Magna Cum Laude
Davidson College
Data Science Minor
  Thesis: Flooding and Floodplain Management as Part of the Waterscape: Flows of Water and Power in Charlotte, North Carolina
  Advisor: Dr. Fuji Lozada

TEACHING EXPERIENCE

Maps: Geographic Information from Bablyon To Google Earth (GE0G115)
Fall 2025, Spring 2025
Introduction to Spatial Data Science (GEOG215)
Spring 2026, Summer 2024, Summer 2023
Introduction to Geographic Information (GEOG370)
Fall 2025
Quantitative Methods in Geography (GEOG391)
Spring 2026
Introduction to Geographic Information Systems (GEOG491)
Spring 2025

MENTORSHIP

Undergraduate Honors Thesis Advisor

Caroline Tintinger (Geography & Environment, 2025-2026)
Undergraduate Honors Thesis Committee Member
Valerie Scull (Geography & Environment, 2025)
Doctoral Committee Member
Sarah Ulrich (Geography & Environment, 2025-2027)

Research Experience

Graduate Research Assistant   *Aug 2020 - Dec 2024*
Southeast Regional Climate Center
- Contributed to a wide variety of research projects, including a high resolution extreme wind climatology, several tornadic vulnerability projects, and extreme heat vulnerability work
- Performed web-development and data curation and analysis for a public-facing hazards dashboard
- Supervised and assisted undergraduate researchers

Graduate Research Assistant   *May 2023 - Dec 2024*
Dr. Paul Delamater
- Collaborated on grant provided by the Carolina Population Center to analyze impacts of weather-related road closures on hospital access

Graduate Research Assistant   *Jan 2024 - Aug 2024*
Dr. Nikhil Kaza
- Utilized a improved shape compactness metric to analyze temporal change in US metro counties

Data Verification Specialist   *May 2023 - Dec 2024*
The Odum Institute for Research in Social Science
- Reviewed data and code for manuscripts accepted at various political science journals for adherence to replication standards
- Completed verification reports to offer feedback to authors on identified problems
- Advised verification team on strategies for verifying manuscripts that utilize GIS technology

Graduate Research Assistant   *Jan 2021 - Dec 2021*
Data-Driven EnviroLab, Department of Public Policy
- Contributed to modeling and analysis of micro-scale heat data collected by citizen scientists
- Processed and analyzed dozens of remotely sensed products to consider the impact of Chinese investment on land use change in southeast Asia

Peer Reviewed Papers

Cardwell, J., Delamater, P. L., & Konrad, C. E. (2026). A population-based, demand-aware framework for measuring structural road network redundancy. *Journal of Transport Geography*, 131, 104569.
Wang, X. Johnson, E. Manya, D. **Cardwell, J.** & Hsu, A. (2025). One Belt, Many Roads: Investigating China's Foreign Investment and Land-use Impacts in Southeast Asia. *PLOS*

Sustainability and Transformation, 4(8), p.e0000194.

Cardwell, J., Delamater, P. L., & Konrad, C. E. (2024). Impacts of weather-related road closures on daily habitual travel in North Carolina. *Journal of Transport Geography*, 121, 104043.

Cardwell, J., & Cowan, K. N. (2023). Local news sentiment towards FEMA recovery efforts after Hurricane Florence in North Carolina. *Disasters*, 47(4),1025-1046.

Cardwell, J. (2023). Community perceptions of a floodplain buyout program in Charlotte, North Carolina. *Natural Hazards*, 115(3),2141-2160.

Cardwell, J., & Konrad, C. E. (2023). Trends in recovery aid concentration following Hurricane Florence in North Carolina: Exploring the role of physical damage, community vulnerability, and Hurricane Matthew. *Environmental Hazards*, 22(2), 177-199.

Cardwell, J. (2022). Disruption to EMS service during flood scenarios in Western North Carolina. *Journal of Rural Social Science*, 37(3), 6.

Cardwell, J. (2022). Examining the shifting role of the human in disaster studies. *Journal of the Bulgarian Geographical Society*, 46, 51-55.

Cardwell, J. (2021). Trends in flood insurance behavior following hurricanes in North Carolina. *North Carolina Geographer*, 20, 2-12.

OTHER PUBLICATIONS

Martin, A., **Cardwell, J.**, Mundt, J., Kramer, R., & Beckham, T. (2020). Climate justice. In *North Carolina climate risk assessment and resilience plan* (Chapter 4). State of North Carolina.

SUBMITTED PAPERS

CONFERENCES AND TALKS

2024

Konrad, C., **Cardwell, J.**, & Fuhrmann, C. The development of an impacts-based high wind climatology that is tailored to social vulnerability, presented at Southern Appalachian Weather and Climate Workshop III, Roanoke, VA

Sheridan, S., Kalkstein, A., Fuhrmann, C., Silva, A., **Cardwell, J.**, & Konrad, C. Assessing the Wet-Bulb Globe Temperature as a predictor of overall mortality in summer, presented at American Association of Geographers, Honolulu, Hawaii

Brooks, C.D. & **Cardwell, J.** Poop in the air, should we care? Estimating the educational impacts of hog farm pollution in North Carolina, presented at the annual meeting of the Association of Education Finance and Policy, Baltimore, MD

Cardwell, J. Weather-related Impacts to Local Travel in North Carolina, presented at American Association of Geographers, Virtual

2023

Brooks, C.D. & **Cardwell, J.** Poop in the air, should we care? Estimating the educational impacts of hog farm pollution in North Carolina, presented at the annual meeting of the Association of Public Policy Analysis & Management, Atlanta, GA

Cardwell, J. Methods to Analyze Disruption of EMS Service During Flood Scenarios, presented at American Association of Geographers, Denver, Colorado

Cardwell, J. Exploring the Impacts of Weather-Related Road Closures in North Carolina, presented at Highway Safety Research Center, Chapel Hill, North Carolina

Cardwell, J. Impacts to Local Travel During Weather-Related Road Closures in North Carolina, presented at Southeastern Division of the American Association of Geography, Norfolk, Virginia

Brooks, C.D. & **Cardwell, J.** Poop in the air, should we care? Estimating the educational impacts of hog farm pollution in North Carolina, presented at the annual meeting of the Association of Education Finance and Policy, Denver, CO

2022
Cardwell, J. Analyzing Recovery Aid Concentration in North Carolina Following Hurricane Florence, presented at American Association of Geographers, Virtual

2021
Cardwell, J. Trends in NFIP (National Flood Insurance Program) Participation after Major Hurricanes in North Carolina, presented at Annual Meeting of the North Carolina Geographical Society, Virtual

AWARDS AND HONORS

Graduate Research Fellowship Program, National Science Foundation	*2022*
Honorable Mention	
Phi Beta Kappa, Davidson College	*2019*

GRANTS, FUNDING, AND FELLOWSHIPS

Summer Research Grant, UNC Chapel Hill , $1,500	*2021*
Graduate Merit Fellow, UNC Chapel Hill, $20,000	*2020-2021*
Weiss Urban Livability Fellow, UNC Chapel Hill, $4,000	*2020-2021*

PEDAGOGICAL TRAINING

Associate Level, Center for the Integration of Teaching and Learning	*Spring 2024-Present*
Introduction to Evidence-Based Undergraduate STEM Teaching	*Jun-Aug 2024*
UNC Institute on College Teaching	*Aug 2024*

DIVERSITY AND INCLUSION TRAINING

UNC Digital Accessibility Training	*May 2024*
SafeZone (LGBTQ+ Awareness Training)	*May 2024*
Mental Health First Aid Training	*Aug 2024*

Skills

Languages: R, Python, VB.NET, JavaScript, Stata
Technologies: ArcGIS Pro, ArcMap, ArcGIS Online, QGIS, Google Earth Engine, SPSS, ENVI, cluster computing

University Service

Faculty Member, Geospatial BS Degree Committee	*2025-2026*
Faculty Member, GISc Certificate Committee	*2025-2026*
Faculty Member, Undergraduate Committee	*2025-2026*
Advisor, Environmental Justice Minor	*2025-2026*
Graduate Student Representative, Faculty Committee	*2023-2024*
Co-President, Graduate Association of Geography Students	*2022-2023*
Graduate Student Representative, Graduate Committee	*2020-2022*

Affiliations

American Association of Geographers