

Yusuf Jamal, Ph.D.

Department of Geography and Environmental Sustainability
University of Oklahoma
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RESEARCH INTERESTS

Environmental Systems Modeling, Machine Learning Applications in Environmental Engineering, Urban Indoor and Outdoor Environmental Monitoring, Environmental Risk Assessment and Exposure Modeling, Climate–Health Interactions, Geospatial and Remote Sensing Applications in Environmental Sustainability, Data-Driven Decision Support Systems, Environmental Health

EDUCATION

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- **Ph.D.**, Environmental Engineering Sciences, University of Florida, USA, Dec. 2023
Thesis: *Development of Quantitative Approaches to Address Environmental Biothreats*
Advisor: Dr. Antarpreet Jutla
 - **MTech.**, Hydraulics and Water Resources Engineering, IIT Kanpur, India, Jan 2014
Thesis: *Estimation of Unsaturated Flow Parameters using Infiltration Data*
Advisor: Dr. Rajesh Srivastava
 - **BTech**: Civil Engineering, Aligarh Muslim University, Jul. 2011

PROFESSIONAL EXPERIENCE

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- **Postdoctoral Research Fellow**, Department of Environmental Sustainability, University of Oklahoma, USA, Jan. 2024 – Nov 2025
(**Principal Investigators**: Michael Wimberly, Courtney Murdock, Mercedes Pascual)
 - **Graduate Research Assistant**, University of Florida, Aug. 2019 – Dec.2023
Research: Develop quantitative methods to assess the impact of climate and environmental factors on infectious diseases using remote sensing and systems thinking methods
 - **Assistant Professor**, Integral University, India, Jul. 2014 – Nov. 2018
Duties: Teaching core courses of civil engineering to undergraduate and master's students

AWARDS AND HONORS

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- Awarded Fully Funded Doctoral Fellowship (Research Assistantship) in Environmental Engineering Sciences at the University of Florida (QS Ranking-180,2019), USA,2019-2023
 - Selected for master's program in Civil Engineering with Ministry of Human Resource Development (MHRD) fellowship at the Indian Institute of Technology Kanpur,2011-2014

- Secured First Division with Honors in B. Tech Civil Engineering, Aligarh Muslim University
- NASA GLOBE Virtual Science Symposium Outstanding Reviewer Award
- American Geophysical Union (AGU) *GeoHealth* Outstanding Reviewer Award

TEACHING/MENTORING EXPERIENCE

1. **Assistant Professor, Department of Civil Engineering, Integral University, 2014-2018**
 - (1) CE 201 – Fluid Mechanics (undergraduate, 60-80 students), 2014-2018
 - (2) CE 401-Hydraulics and Hydraulic Machines (undergraduate, 60-80 students), 2014-2018
 - (3) CE 801-Open Channel Hydraulics (undergraduate, 60-80 students), 2014-2016
 - (4) CE 701-Wastewater Treatment Engineering (undergraduate, 60-80 students), 2014-2018
 - (5) CE 809-Impact of Climate Change on Civil Engineering Projects (undergraduate), 2017-2018
 - (6) CE 703-Water Resources Engineering (undergraduate, 80 students), 2015-2016
 - (7) CE 901-Unit Operations and Processes (Master's, 10 students), 2016-2017
 - (8) CE 907-Transport of Water and Wastewater (Master's, 10 students), 2017-2018
 - (9) CE 709-Environment and Ecology (undergraduate, 70 students), 2014-2015
 - (10) CE 709-Air Pollution Control (Master's, 20 students), 2016-2017
2. **Teaching Assistant, Department of Environmental Sustainability, University of Oklahoma, Aug. 2025-Nov 2025**
 - (1) GIS 4453 – Advanced GIS and Spatial Analysis (undergraduate, 30 students)
 - (2) ENVI 407/507 - Remote Sensing: Digital Analysis (undergraduate/graduate level, 4 students)
 - (3) ENVI 450/550 - Envi Modeling & Mapping (undergraduate/graduate level, 5 students)
3. **Mentoring**
 - (1) Lauren Diaz, M.S. student, University of Florida, Aug 2021-Nov 2022
 - (2) Emily & Amber Crumpfield, B.S. students, University of Florida, Aug 2022-Nov 2023

PUBLICATIONS

Under review & in preparation

1. **Jamal, Y.**, Usmani, Abdullah. Integrating Artificial Intelligence and Systems Thinking for Sustainable Decision-Making in Engineering. journal: *Discover Sustainability (In preparation)*
2. **Jamal, Y.**, Murdock, C. C., Baharia, R. K., Sharma, R., Vaishnav, K., Desai, V., Kohli, V., Mohanty, A. K., Pascual, M., Sharma, S., Anvikar, A., & Wimberly, M. Predicting Urban Microclimates Using Field Measurements and Machine Learning. journal: *Science of the Total Environment (In preparation)*

Peer-reviewed journal articles

1. **Jamal, Y.**, Murdock, C. C., Baharia, R. K., Sharma, R., Vaishnav, K., Desai, V., Kohli, V., Mohanty, A. K., Pascual, M., Sharma, S., Anvikar, A., & Wimberly, M. (2025).

Spatiotemporal patterns of urban heat in indoor and outdoor microclimates. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ae09bc>

2. Khan, I., Singh, A., & **Jamal, Y.** (2025). Hydrogeochemical Dynamics of Groundwater in the Punjab Region of the Indo-Gangetic Plains: An Entropy-Weighted and Geochemical Modeling Approach. *Earth Systems and Environment*. <https://doi.org/10.1007/s41748-025-00684-1>
3. **Jamal, Y.**, Usmani, M., Brumfield, K. D., Singh, K., Huq, A., Nguyen, T. H., Colwell, R., & Jutla, A. (2024). Quantification of Climate Footprints of *Vibrio vulnificus* in Coastal Human Communities of the United States Gulf Coast. *GeoHealth*, 8(8), e2023GH001005 <https://doi.org/10.1029/2023GH001005>
4. Gangwar, M., **Jamal, Y.**, Usmani, M., Wu, C.-Y., & Jutla, A. S. (2024). Carbon dioxide as an indicator of bioaerosol activity and human health in K-12 school systems: A scoping review of current knowledge. *Environmental Research: Health*, 2(1), 012001. <https://doi.org/10.1088/2752-5309/ad1c41>
5. Usmani, M., Uprety, S., Bonham, N., **Jamal, Y.**, Mao, Y., Sano, D., Shisler, J., Unnikrishnan, A., Nguyen, T. H., & Jutla, A. (2023). Assessment of pathogens in flood waters in coastal rural regions: Case study after Hurricane Michael and Florence. *PLOS ONE*, 18(8), e0273757. <https://doi.org/10.1371/journal.pone.0273757>
6. **Jamal, Y.**, Gangwar, M., Usmani, M., Adams, A. E., Wu, C., Nguyen, T. H., Colwell, R., & Jutla, A. (2022). Identification of Thresholds on Population Density for Understanding Transmission of COVID-19. *GeoHealth*, 6(9). <https://doi.org/10.1029/2021GH000449>
7. Oh, C., Zhou, A., O'Brien, K., **Jamal, Y.**, Wennerdahl, H., Schmidt, A. R., Shisler, J. L., Jutla, A., Schmidt, A. R., Keefer, L., Brown, W. M., & Nguyen, T. H. (2022). Application of neighborhood-scale wastewater-based epidemiology in low COVID-19 incidence situations. *Science of The Total Environment*, 852, 158448. <https://doi.org/10.1016/j.scitotenv.2022.158448>
8. Usmani, M., **Jamal, Y.**, Gangwar, M., Magers, B., Chaves-Gonzalez, J., Wu, C.-Y., Colwell, R., & Jutla, A. (2022). Asymmetric Relationship between Ambient Air Temperature and Incidence of COVID-19 in the Human Population. *The American Journal of Tropical Medicine and Hygiene*. <https://doi.org/10.4269/ajtmh.21-0328>
9. Usmani, M., Brumfield, K. D., **Jamal, Y.**, Huq, A., Colwell, R. R., & Jutla, A. (2021). A Review of the Environmental Trigger and Transmission Components for Prediction of Cholera. *Tropical Medicine and Infectious Disease*, 6(3), 147. <https://doi.org/10.3390/tropicalmed6030147>

PRESENTATIONS AT INTERNATIONAL MEETINGS/CONFERENCES

Invited presentations

- 2026: "*Beyond the Syllabus: A Civil Engineer's Journey and the Road Ahead*", Integral University, India, Feb. 2026.
- 2025: "*Microclimate Measurement and Applications*", Data Institute of Societal Challenges (DISC), University of Oklahoma, USA, Sept. 2025.
- 2023: "*System Dynamics and Applications in Addressing Environmental Justice issues*", University of Florida, USA, March 2023
- 2020: "*Climate Change and Environmental Health: Shifting Perspectives from Modeling to Policy Making*", Maulana Ali Jauhar University, India, Jun.2020 (Online).

Other presentations

- 2025: "*Relative Humidity Influences Spatial Patterns of Urban Malaria Suitability*", AGU Fall Meeting, New Orleans, USA, December 2025. (**Poster**).
- 2025: "*Influence of Land Cover on Urban Microclimates in Tropical Urban Cities*", North American Regional Chapter of the International Association for Landscape Ecology, Raleigh, North Carolina, USA. April 2025. (**Oral**).
- 2024: "*Health Implications of Urban Heat Islands in Tropical Cities: Differences Between Indoor and Outdoor Microenvironments*", AGU Fall Meeting, Washington, D.C., USA. December 2024. (**Poster & panel discussion**).
- 2023: "*Establishment of Thresholds on Sea Surface Temperature and Chlorophyll for Distinguishing the Risk of *V. vulnificus* Infections*", AGU Fall Meeting, San Francisco, CA. December 2023. (**Oral**).
- 2023: "*Human health as an indicator of climate change*", European Geophysical Union (EGU), General Assembly 2023, Vienna, Austria, 24–28 Apr 2023. (**Oral & panel discussion**).
- 2023: "*Variability and the odds of Total and Pathogenic *Vibrio* abundance in Chesapeake Bay*", European Geophysical Union (EGU), General Assembly 2023, Vienna, Austria, 24–28 Apr 2023. (**Oral**).
- 2021: "*Predictive Risk Assessment of Biothreats Along US Coast: A Case Study from Florida*", Oceans and Human Health (OHH) Meeting, October 2021. (**Oral and panel discussion**).

- 2021: "*Revisiting the predictive aims for disease models: Critical assessment of SIR model competence in cholera prediction*", AGU Fall Conference, New Orleans, U.S., December 2021 (**Poster**).
- 2020: "*On the potential viability of epidemiological models in utilitarian COVID-19 prediction*", AGU Fall Meeting (**Online Poster**). December 2020.

PROFESSIONAL AFFILIATIONS AND SERVICES

Professional member

- American Geophysical Union (AGU)
- American Society of Tropical Medicine and Hygiene (ASTMH)
- American Meteorological Society (AMS)
- International Association of Urban Climate (IUAC)

Peer reviewer of journals

Nature Scientific Reports; PLOS Computational Biology; BMC Medical Research Methodology; AGU GeoHealth; Environment Systems and Decisions; Earth Systems and Environment; Archives of Computational Methods in Engineering; Environmental Research: Health

Other Services

- **Group Leader**-Peer Mentoring Group of graduate students and Postdocs at the University of Oklahoma in Fall 2025 on "*Micro credentials for instructional competencies.*"
- **Judge, Outstanding Student Presentation Awards (OSPA)** – Poster presentations at AGU 2024, Washington, D.C., USA, December 2024.
- **Judge, Best Student Poster (BSP) Competition** – ILAENA Conference, Raleigh, North Carolina, USA, April 2025.
- **Reviewer, Student STEM Projects**-2026 NASA GLOBE Virtual Science Symposium (VSS), February 2026.

CURRICULUM DEVELOPMENT AND ACADEMIC PROGRAM DESIGN

- Designed and developed a master's-level course ***in Hydraulics and Water Resources Engineering***, including syllabi, lecture structure, assignments, and evaluation framework, Integral University, India, 2018
- Developed and taught a final-year undergraduate course titled ***Impact of Climate Change on Civil Engineering Projects***. Integral University, India, 2018

REREFENCES

Antarpreet Singh Jutla, PhD

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