

Lauryn Spearing, PhD

Contact: spearing@uic.edu

ACADEMIC POSITIONS

The University of Illinois Chicago (UIC), College of Engineering

Assistant Professor

Civil, Materials, and Environmental Engineering

August 2022- Present

EDUCATION

The University of Texas at Austin, Cockrell School of Engineering

Doctor of Philosophy in Civil Engineering

Specialization: Sustainable Systems, Water Resources Engineering,
Construction Engineering & Project Management

Certificate in Engineering Education

August 2021

The University of Texas at Austin, Cockrell School of Engineering

Masters of Science in Civil Engineering

Specialization: Sustainable Systems

December 2019

GPA: 4.0/4.0

The University of Texas at Austin, Cockrell School of Engineering

Bachelor of Science in Civil Engineering with High Honors

Business Foundations Certificate

May 2017

GPA: 3.9/4.0

AWARDS & HONORS

- National Science Foundation Graduate Research Fellowship, 2018-2021
- MIT Civil and Environmental Engineering Rising Stars Program, 2021
- Editor's Choice Paper, Journal of Water Resources Planning and Management for Issue 147 (5), 2021
- Best Poster Competition, Engineering Project Organization Conference, 2020
- Bill Archer Graduate Policy Fellowship, 2019
- Texas National Security Network Fellowship, 2019
- Cockrell School Multi-Year Fellowship, 2018-2021

MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES

- American Society of Civil Engineers (ASCE), Associate Member
- Construction Research Congress, Member
- American Geophysical Union, Member

PROFESSIONAL SOCIETY/GOVERNMENT SERVICE AND TECHNICAL COMMITTEES

Journal Reviewer

- ASCE Journal of Construction Engineering and Management
- ASCE Journal of Water Resources Planning and Management
- ASCE Journal of Sustainable Water in the Built Environment
- Sustainable Cities and Society
- American Water Works Association (AWWA) Water Science
- Journal of Water, Sanitation and Hygiene for Development
- iScience
- International Journal of Disaster Risk Reduction
- PLOS One

Academic Conferences

- ASCE Construction Research Congress Conference
 - *Session Chair (2022)*
 - *Reviewer (2020, 2022)*
- Engineering Project Organization Conference
 - *Conference Co-Chair (2023)*
 - *Reviewer (2020)*

PUBLICATIONS

*Indicates supervised graduate or undergraduate student at UIC or UT Austin

REFEREED JOURNAL PAPERS

12. **Spearing, L.**, Mehendale, P.*, Albertson, L., Kaminsky, J., and Faust, K. (2022). "Improving Water Infrastructure Systems in Alaska: Identifying Vulnerabilities at the Intersection of Social, Natural, and Physical Systems." *Journal of Cleaner Production*. 379 (Part 1). <https://doi.org/10.1016/j.jclepro.2022.134596>
11. Brown, M.*, **Spearing, L.**, Roy, A., Kaminsky, J., and Faust, K. (2022). "Drivers of Declining Water Access in Alaska." *Environmental Science and Technology Water*. <https://doi.org/10.1021/acsestwater.2c00167>
10. **Spearing, L.**, Bakchan, A., Hamlet, L., Stephens, K., Kaminsky, J., and Faust, K. (2022). "Comparing Qualitative Analysis Techniques for Construction Engineering and Management Research: The Case of Arctic Water Infrastructure." *Journal of Construction Engineering and Management Special Collection on Research Methodologies*. 148 (7). <https://ascelibrary.org/doi/epdf/10.1061/%28ASCE%29CO.1943-7862.0002313>
9. Stephens, K., Powers, C., Robertson, B., **Spearing, L.**, Collier, J., Tich, K., and Smith, W.R. (2022). "Building More Resilient Communities: Communication and Organizing Practices in a Community-Wide Wildfire Evacuation Drill in the U.S." *Journal of Contingencies and Crisis Management*. <http://doi.org/10.1111/1468-5973.12402>
8. Tiedmann, H., **Spearing, L.**, Sela, L., Kaminsky, J., Katz, L., Kinney, K., Kirisits, M., and Faust, K. (2022). "Modeling in the COVID-19 Pandemic: Overcoming the Water Sector's Data Struggles to Realize the Potential of Hydraulic Models." *Journal of Water Resources Planning and Management*, 148 (6). [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001561](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001561)
7. Berglund, E. Z., Buchberger, S... **Spearing, L.**... Yang, E. (2022). "Effects of the COVID-19 Pandemic on Water Utility Operations and Vulnerability." *Journal of Water Resources Planning and Management*. 148 (6). [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001560](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001560)
6. **Spearing, L.**, Tiedmann, H., Sela, L., Nagy, Z., Kaminsky, J., Katz, L., Kinney, K., Kirisits, M., and Faust, K. (2021). "Human-Infrastructure Interactions during the COVID-19 Pandemic: Understanding Water and Electricity Demand Profiles at the Building-Level." *Environmental Science and Technology Water*. 1 (11). <https://doi.org/10.1021/acsestwater.1c00176>
5. Berglund, E. Z., Thelemaque, N., **Spearing, L.**, Faust, K. M.,... Kadinski, L. (2021). "Water and Wastewater Systems and Utilities: Challenges and Opportunities during the COVID-19 Pandemic." *Journal of Water Resources Planning and Management*, 147 (5). [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001373](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001373)
**Editor's Choice, Issue 147(5)*
4. **Spearing, L.**, Stephens, K., and Faust, K. (2021). "Shelter Shopping: Where the Built Environment and Social Systems Meet." *International Journal of Disaster Risk Reduction*, 58. <https://doi.org/10.1016/j.ijdr.2021.102161>

3. **Spearing, L.**, Thelemaque, N., Kaminsky, J., Katz, L., Kinney, K., Sela, L. and Faust, K. (2020). “Implications of Social Distancing Policies on Drinking Water Infrastructure: An Overview of the Challenges to and Responses of US Utilities during the COVID-19 Pandemic.” *Environmental Science and Technology Water*, 1. <https://doi.org/10.1021/acsestwater.0c00229>
2. **Spearing, L.**, Dias, F., Faust, K., and Bhat, C. (2020). “Determining Multi-level Drivers of Perceiving Undesirable Taste and Odor in Tap Water: A Joint Modeling Approach.” *Journal of Water Resources Planning and Management*, 147 (3). [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001326](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001326)
1. **Spearing, L.**, and Faust, K. (2020). “Cascading System Impacts of the 2018 Camp Fire in California: The Interdependent Provision of Infrastructure Services to Displaced Populations.” *International Journal of Disaster Risk Reduction*, 50. <https://doi.org/10.1016/j.ijdr.2020.101822>

REFEREED JOURNAL PAPERS (Under Review)

4. Tiedmann, H.*, **Spearing, L.**, Stephens, K., Castellanos, S., and Faust, K. (202x). “One Year Later: Water Infrastructure Resilience and the 2021 Texas Winter Storm.” (Under Review)
3. Toland, J.*, Wein, A., Wu, A., and **Spearing, L.** (202x). “A Conceptual Framework for Estimation of Initial Emergency Food and Water Resource Requirements in Disasters Corresponding.” (Under Review)
2. LaPatin, M.*, Poleacovschi, C., Nguyen, L., Barrens, S., **Spearing, L.**, Padgett-Walsh, K., Feinstein, S., Rutherford, C., Vaziri, B., and Faust, K. (202x). “Engineering in a Crisis: Observing Students’ Attitudes of Macroethics During Pandemics and Natural Disasters.” (Under Review)
1. LaPatin, M.*, **Spearing, L.**, Tiedmann, H.*, Hacker, M., Kavvada, O., Giorda, M., Danielou, J., and Faust, K. (202x). “Controversy in Energy Construction Projects: How Social Systems Impact Project Performance.” (Under Review)

REFEREED CONFERENCE PROCEEDINGS

9. **Spearing, L.**, Nweye, K., Tiedmann, H., Nagy, Z., Sela, L., and Faust, K. (2022). “Water Demand and Human Behavior during Compounding Disasters: The Case of Winter Storm Uri and the COVID-19 Pandemic.” World Environmental and Water Resources Congress, Atlanta, Georgia, USA.
8. **Spearing, L.**, Thelemaque, N., Araya, F., Kaminsky, J., and Faust, K. (2022). “Connecting Pre-existing Characteristics of Water Utilities to Impacts during the COVID-19 Pandemic.” Construction Research Congress, Arlington, Virginia, USA. <https://doi.org/10.1061/9780784483954.026>
7. Thelemaque, N., **Spearing, L.**, Faust, K. and Kaminsky, J. (2022). “Water Utilities and the COVID-19 Pandemic: A Review of Pandemic-Related Research.” Construction Research Congress, Arlington, Virginia, USA. <https://doi.org/10.1061/9780784483954.052>
6. LaPatin, M., **Spearing, L.**, Tiedmann, H., Kavvada, O., Giorda, M., Daniélou, J., Hacker, M. and Faust, K. (2022). “A Framework for Measuring the Cost of Controversy Surrounding Energy Construction Projects.” Construction Research Congress, Arlington, Virginia, USA. <https://doi.org/10.1061/9780784483978.077>
5. LaPatin, M., **Spearing, L.**, Tiedmann, H., Kavvada, O., Giorda, M., Daniélou, J., Hacker, M. and Faust, K. (2021). “Why Do Energy Projects Fail? Understanding How Controversy Impacts Construction Projects.” Int. Construction Specialty Conference, Virtual.
4. **Spearing L.**, Osman, K., Faust, K.M., and Armanios, D. (2020). “Systems Vary, Affordability Should Not: Trends of Water Sector Affordability Based on City Attributes.” Construction Research Congress, Tempe, Arizona, USA.

3. Stephens, K. K., Powers, C. J., **Spearing, L.**, Collier, J., Tich, K., & Robertson, B.W. (2020). “Building more resilient communities: Communication and organizing practices in disaster preparedness.” Int. Communication Association (ICA) Conference, Gold Coast, Australia.
2. Araya, F., Osman, K., **Spearing, L.**, and Faust, K.M. (2019). “Assessing the Influence of Household Characteristics on Water Conservation Behaviors in Austin, Texas.” Int. Construction Specialty Conference, Montreal, Quebec, Canada.
1. Faure, J., Faust, K., Khwaja, N., O’Brien, W., Hale, W., **Spearing, L.** (2019). “Construction Engineering and Inspection (CE&I) Costs in the Texas Department of Transportation.” Int. Construction Specialty Conference, Montreal, Quebec, Canada.

ARCHIVED DATA

3. **Spearing, L.**, LaPatin, M., Ritsch, N., Armanios, D., Katz, L., Albertson, L., and Faust, K. 2022. “Interview Data from April 2022: End-Users' Perceptions of Water Services in Rural Alaska.” Arctic Data Center. <https://doi.org/10.18739/A26Q1SJ48> , Arctic Data Center, V1.
2. **Spearing, L.A.**, Thelemaque, N., Kaminsky, J.A., and Faust, K.M., 2022, "Interview Data: Implications of Social Distancing Policies on Drinking Water Infrastructure", <https://doi.org/10.18738/T8/KIZFLK> , Texas Data Repository, V1
1. **Spearing, L.**, Kaminsky, J., and Faust, L. 2022. “Interview Data from January-June 2021: What Impacts Water Services in Rural Alaska?” <https://doi.org/10.18739/A2VH5CK3M> , Arctic Data Center, V1.

PRESENTATIONS*

**bold indicates presenting author*

ORAL

12. **Spearing, L.** “A Systems Thinking Approach to Water Infrastructure in Alaska.” Navigating the New Arctic Annual Community Meeting. Virtual. November 15, 2022.
11. **Spearing, L.** “The Cascading Impacts of Disasters: How Disaster-Induced Population Changes Impact the Built Environment.” Cambridge Disaster Research Network Seminar. Virtual. November 8, 2022.
10. **Spearing, L.** “Assessing the Impact of APRIME on Industrial Sector Supply Portfolios: Chemical Industry case Studies.” National Alliance for Water Innovation Annual Meeting. Virtual. November 2, 2022.
9. **Spearing, L., Albertson, L., and Ritsch, N.**, “Researchers study Bethel and the region’s water infrastructure.” Coffee at KYUK (Radio Talk). Bethel, Alaska, USA. April 22, 2022. Available online: <https://www.kyuk.org/podcast/coffee-at-kyuk/2022-04-22/researchers-study-bethel-and-the-regions-water-infrastructure>
8. **Spearing, L.**, Thelemaque, N., Araya, F., Kaminsky, J., and Faust, K. “Connecting Pre-existing Characteristics of Water Utilities to Impacts during the COVID-19 Pandemic.” Construction Research Congress, Arlington, Virginia, USA. March 12, 2022.
7. **Nikki, R., Spearing, L., and Osman, K.** “Panel: COVID, Water Infrastructure, and Equity” International Symposium on Sustainable Systems and Technology (ISSST). June 22, 2021.
6. **Spearing, L.** “Cascading Impacts of COVID-19 on Water Infrastructure Systems.” Texas Water Research Network Invited Speaker. May 19, 2021.

5. **Spearing, L.** “The Cascading Impacts of Disasters: How Disaster-Induced Population Changes Impact Cities.” The George Washington University Engineering Management and Systems Engineering Invited Seminar Series. November 13, 2020.
4. **Spearing, L. and Kong, E.** “Social Distancing and Water Infrastructure.” Capital Area American Water Works Association. August 21, 2020.
3. Araya, F., **Osman, K., Spearing, L.**, and Faust, K. “Assessing the Influence of Household Characteristics on Water Conservation Behaviors in Austin, Texas” Int. Construction Specialty Conference, Montreal, Quebec, Canada, June 14, 2019.
2. Faure, J., Faust, K., Khwaja, N., O’Brien, W., Hale, W., **Spearing, L.** “Construction Engineering and Inspection (CE&I) Costs in the Texas Department of Transportation” Int. Construction Specialty Conference, Montreal, Quebec, Canada, June 14, 2019.
1. **Spearing, L.**, and **Saindon, K.** “Public Perceptions of Drinking Water in Mexico City” National Autonomous University of Mexico: Water for Everyone Workshop, Mexico City, Mexico, March 29, 2019.

POSTERS

2. **Spearing, L.** Thelemaque, N., Kaminsky, J., Katz, L., Kinney, K., Kiristis, M., Sela, L., and Faust, K. “Understanding How Social Distancing has Impacted US Water Utilities during the COVID-19 Pandemic” Engineering Project Organization Conference. October 22, 2020. **Winner of the poster competition*
1. **Spearing, L.**, Thelemaque, N., Tiedmann, H., Landsman, M., Palmer, E., Jarma, D., and **Kong, E.** “Implications of Social Distancing Policies on Municipal Water Quality.” The University of Texas COVID-19 Conference. November 11, 2020.

FUNDED RESEARCH

GRANTS AND CONTRACTS

Investigators	Title	Funding Agency	Grant Total	Spearing Share	Grant Period
Katz, L. (PI; UT Austin)	Assessing the Impact of APRIME on	National Alliance for Water	\$962,413	\$56,097	11/01/2022-06/24/2024
Faust, K. (Co-PI; UT Austin)	Industrial Sector Supply Portfolios:	Innovation (NAWI)	UIC Share: \$56,097		
Spearing, L. (Co-PI)	Chemical Industry Case Studies				

TEACHING AND MENTORING EXPERIENCE

TEACHING EXPERIENCE AND TRAINING

CME 594: Systems Thinking and Policy Applications for Civil Engineering

The University of Illinois Chicago, Graduate (500-level)

Instructor of record: Fall 2022

Course description: Solving civil infrastructure problems related to civil engineering using a systems thinking approach, including qualitative analysis of interview data, abstracting systems-of-systems problems, modeling techniques (e.g., system dynamics), and developing policy recommendations.

Training: Graduate Certificate in Engineering Education
The University of Texas at Austin; Completed May 2021

CE 395R: Methods for Project Analysis
The University of Texas at Austin; Graduate
Designed and taught qualitative methods module: Spring 2022

ARE323K Project Management and Economics
The University of Texas at Austin; Undergraduate
Guest lecturer in over five class sessions, including a supervised teaching practicum: Spring 2019-Spring 2021

MENTORING SUPERVISION

In-Rank at UIC

Graduate Students

- Safarpour, Haniye: 2022- Present
- Toland, Joe: Starting Spring 2023

Prior to Joining UIC

Graduate Students

- LaPatin, Michaela: 2021-2022
- Brown, Meredith: 2021-2022
- Tiedmann, Helena: 2021-2022
- Ritsch, Nicola: 2021-2022
- Tariq, Miriam: 2022
- Kim, Kyudong: 2022

Undergraduate Students

- Powell, Cassidy: 2019-2021
- Mehendale, Prachi: 2021-2022
- Verses, Liam: 2021-2022
- Shah, Sahil: 2020
- O'Hanlon, Cristina: 2020

PROFESSIONAL EXPERIENCE

Center for Strategic & International Studies – Washington, D.C. June 2019 – July 2019
Research Intern

- Led the research and design of a policy brief about innovative water management technologies, such as artificial intelligence, aimed to reduce water loss in light of increased water scarcity issues
- Collaborated with international security experts on a project about misinformation in the judicial system
- Provided technical support on a research report about the inland waterways system in the United States

Huitt-Zollars – Dallas, TX June 2017 – June 2018
Roadway Engineer

- Collaborated with a team to engineer roadway designs, consisting of alignments, profiles, and project layouts
- Developed detailed project plans with Microstation and generated submittals for the client
- Created and managed budgets and schedules for large roadway projects
- Facilitated public meetings, fielding questions and concerns about projects to set expectations for the public

Jones and Carter – Austin, TX June 2016 – August 2016
Land Development Engineering Intern

- Drafted pond layouts, drainage maps, and preliminary plans in AutoCAD for multiple projects
- Collaborated with a site development team to prepare submittals for site plans and subdivision applications

Tenaris – Bay City, TX June 2015 – July 2015
Assistant Project Manager/Estimator

- Coordinated with vendors to order materials during the construction of a seamless piping plant

SERVICE

Projects with Underserved Communities – Austin, TX September 2021 – Present
Alumni Advisor

- Advise undergraduate teams as they design and plan international service projects
- Participate in panel sessions to provide advice about project planning and implementation

Texas Engineering Summer Camp – Austin, TX and Houston, TX June 2022
Guest Speaker

- Spoke to the 8th grade students about sustainability in civil engineering
- Led exercises to understand how engineering is related to people and to practice systems thinking

Ann Richards School for Young Women – Austin, TX January 2019
Guest Speaker

- Spoke to the 8th grade students about research on water conservation and discussed my experiences in engineering to encourage young women to pursue STEM fields
- Assisted students with their project about water sustainability in Texas through group discussions

Projects with Underserved Communities – Tamil Nadu, India August 2015 – June 2016
Scheduling Manager

- Designed a community center for women and children in a rural village in southern India
- Spent five weeks on-site facilitating the building construction
- Oversaw the schedule of design and construction in Microsoft Project to ensure the project stayed on time
- Corresponded with community members about details of the project during the design phase and on-site