

Zain Al Hour, Ph.D., ENV SP
Associate Professor of Instruction

Department of Civil and Construction Engineering and Management
College of Engineering/Houston Engineering Center, University of Texas at Tyler
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Research Interests

Surface and subsurface hydrology; sustainable water resources planning and management; hydrologic impacts of climate change; extreme rainfall events; urban stormwater best management practices (BMPs); sustainable and resilient water infrastructure; climate adaptation and resilience; and environmentally sustainable approaches to water resources management.

Education

Ph.D., Civil and Environmental Engineering (Water Resources)

Washington State University, Pullman, WA

Dissertation: Modifications on the existing design parameters to improve the performance of infiltration treatment BMPs in cold climates.

M.Sc., Civil and Environmental Engineering (Water Resources)

University of South Carolina, Columbia, SC

Thesis: A regression method for estimating the saturated hydraulic conductivity of unsaturated soil from cone permeameter data

B.Sc., Agricultural Engineering and Technology

Jordan University of Science and Technology, Irbid, Jordan

Project: Loading Simulation of a Drawbar for Tractor-Trailer Combination

Academic & Professional Experience

Associate Professor of Instruction, University of Texas at Tyler-HEC (01/2023–Present)

Associate Professor, University of Utah, Salt Lake City, UT (08/2022–12/2022)

Associate Professor and Chair, Al al-Bayt University (08/2021–07/2022)

Associate Professor, Al al-Bayt University (09/2019–07/2021)

Associate Professor and Chair, Ajloun National University (09/2018–08/2019)

Associate Professor–Lecturer, University of Utah (08/2017–06/2018)

Visiting Research Scholar, Texas A&M University, College Station (08/2016–06/2017)

Associate Professor and Chair, Applied Science University (09/2015–08/2016)

Assistant Professor, Applied Science University (09/2008–08/2015)

Early Career Experience

Graduate Research Assistant (Ph.D.), Washington State University (2005–2008)

Associate Researcher, UNESCO Chair in Wadi Hydrology, University of Jordan (2003–2004)

Water Resources Engineer, Al Shamil Engineering Company, Amman, Jordan (2002–2003)

Graduate Research Assistant (M.Sc.), University of South Carolina (1998–1999)

Graduate Teaching Assistant, Jordan University of Science and Technology (1995–1996)

Certifications & Professional Development

- Envision Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure (ISI), 2026
- Certificate in Effective Teaching Practices, Association of College and University Educators (ACUE), 2025
- Certified Online Instructor, Office of Digital Learning, The University of Texas at Tyler, 2024
- Certificate of Professional Development, Center for Excellence in Teaching and Learning, The University of Texas at Tyler. 2022–2023

Teaching Portfolio

University of Texas at Tyler – Houston, TX

- Fluid Mechanics and Hydraulics, Introduction to Environmental Engineering, Environmental Design, Engineering Hydrology and Hydraulic Design, Construction Management

University of Utah – Salt Lake City, UT

- Fluid Mechanics and Hydraulics, Open Channel Hydraulics, Statics, Engineering Economy, Probability and Statics.

Al al-Bayt University – Jordan

- Fluid Mechanics, Hydraulics, Hydrology, Climate Change & Environment, Special Topics in Water, Fluid and Hydraulic Laboratory, Senior Capstone Design Course.

Texas A&M University- College Station, TX

- Senior Capstone Design Course.

Ajloun National University – Jordan

- Fluid Mechanics, Hydraulics, Hydrology, Climate Change & Environment, Special Topics in Water, Senior Capstone Design Course.

Applied Science University-Jordan

- Fluid Mechanics, Hydraulics, Hydrology, Sanitary Engineering, Environmental Engineering, Senior Capstone Design Course, Technical Writing & Scientific Research Principles, Fluid and Hydraulic Laboratory, Groundwater Hydrology, Special Topics in Water & Environmental Engineering

Other Institutions

- Hydraulics, Environmental Engineering, Water/Wastewater Treatment, Sanitary Engineering.

Publications & Presentations

Peer-Reviewed Journal Articles

1. Muhammetoglu, A., Al-Omari, A., Al-Houri, Z., Topkaya, B., Tumbul, T., & Muhammetoglu, H. (2023). Assessment of energy performance and GHG emissions for the urban water cycle toward sustainability. *Journal of Water and Climate Change*, 14(01), 223-238.
2. Al-Omari, A., Al-Houri, Z., Muhammetoglu, H., Muhammetoglu, A., & Topkaya, B. (2022). Energy and Carbon Footprints for the Urban Water Cycle in Amman, Jordan. *International Journal of Environmental Research*, 16(5), 1-12.
3. Al-Houri, Z., & Al-Omari, A. (2022). Assessment of rooftop rainwater harvesting in Ajloun, Jordan. *Water Reuse*, 12(1), 22-32.
4. Al-Omari, A., & Al-Houri, Z. (2021). Impact of greywater reuse on black water quality. *Desalination and Water Treatment*, 218, 240-251.
5. Alzgoool, H., Alkasasbeh, H., Abu-ghurra, S., Al-Houri, Z., & Swalmeh, M. (2019). Numerical solution of heat transfer in MHD mixed convection flow micropolar Casson fluid about solid sphere with radiation effect. *International Journal of Engineering Research and Technology*, 12(4), 519-529.
6. Al-Omari, A., Al-Bakri, J., Hindiye, M., Al-Houri, Z., Farhan, I., & Jibril, F. (2018). Integrated hydrologic and quality model for Zarqa river basin in Jordan. *Fresenius Environmental Bulletin*, 27(7), 4637-4647.
7. Al-Omari, A., Al-Karablieh, E., Al-Houri, Z., Salman, A., & Al-Weshah, R. (2015). Irrigation water management in the Jordan Valley under water scarcity. *Fresenius Environ Bull*, 24, 1176-1188.
8. Al-Houri, Z. (2014). Detecting variability and trends in daily rainfall characteristics in Amman-Zarqa basin, Jordan. *International Journal of Applied Science and Technology*, 4(6).
9. Al-Houri, Z., Abu-Hadba, O., & Hamdan, K. (2014). The potential of roof top rainwater harvesting as a water resource in Jordan: Featuring two application case studies. *International Journal of Environmental and Ecological Engineering*, 8(2), 147-153.
10. Al-Houri, Z., Al-Omari, A., & Saleh, O. (2014). Frequency analysis of annual one day maximum rainfall at Amman Zarqa Basin, Jordan. *Civil and Environmental Research*, 6(3), 44-57.
11. Al-Omari, A., Al-Houri, Z., & Al-Weshah, R. (2013). Impact of the As Samra wastewater treatment plant upgrade on the water quality (COD, electrical conductivity, TP, TN) of the Zarqa River. *Water science and technology*, 67(7), 1455-1464.
12. Al-Omari, A., & Al-Houri, Z. (2012). Response of King Abdulla Canal Water to the upgrade of As Samra WWTP. In *Proceedings of World Academy of Science, Engineering and Technology* (No. 71, p. 25). World Academy of Science, Engineering and Technology (WASET).
13. Al-Houri, Z., & Al-Omari, A. (2012). Evaluation of drainage conditions along selected roadways in Amman. *International Journal of Civil, Environmental, Structural, Construction and Architectural Engineering*, 6(11), 965-970.
14. Al-Houri, Z., Al-Omari, A., Ramadan, K., & Shakaa, H. (2011). Quality of highway runoff at two locations in Amman City: a preliminary investigation. In *Proceedings of the International Conference on Environment and Bioscience* (pp. 21-23).
15. Al-Houri, Z., & Barber, M. (2011). Assessment of the SCS-CN initial abstraction ratio for predicting runoff treatment volumes during rain-on- snow events. *Fresenius Environmental Bulletin*, 20(9a), 2391-2399.

16. Al-Houri, Z., Barber, M., Yonge, D., Ullman, J., & Beutel, M. (2009). Impacts of frozen soils on the performance of infiltration treatment facilities. *Cold Regions Science and Technology*, 59(1), 51-57.
17. Nelson, S., Yonge, D., Barber, M., Beutel, M., & Al-Houri, Z. (2006). Performance evaluation of cold weather flow control and runoff treatment BMPs. In *Current Practices in Cold Regions Engineering*, 1-14.

Refereed Conference Proceedings

18. Al-Houri, Z.M., Al-Omari, A.S., Ramadan, K.Z., and Shakaa, H.S. (2011). Quality of highway runoff at two locations in Amman City: A Preliminary Investigation. In the proceedings of the International Conference on Environment and Bio-Science. IPCBEE, 21, @ (2011) IACSIT Press, Singapore.
19. Al-Houri, Z.M., and Barber, M.E. (2010). Assessment of the SCS-CN initial abstraction ratio for predicting runoff treatment volumes during rain-on- snow events. In the proceeding of the International Sustainable Water and Wastewater Symposium, 177, Konya, Turkey.
20. Nelson, S.S., Yonge, D.R., Barber, M.E., Beutel, M. W., and Al-Houri, Z.M., (2006). Performance Evaluation of Cold Weather Flow Control and Runoff Treatment BMPs. *Cold Region Engineering 2006*, 1-14. Proceedings of ASCE 13th International Conference on Cold Regions Engineering, Orono, Maine, USA.
21. Barber, M., and Al-Houri, Z., (2009). Frozen Soil Impacts on Stormwater Infiltration Treatment BMP Designs. Proceedings of the 2009 UCOWR/NIWR Annual Conference, Urban Water Management: Issues and Opportunities, Chicago, IL.
22. Al-Houri, Z. and Barber, M., (2009). Frozen Soil Impacts on Stormwater Infiltration Treatment BMP Designs: Lessons from Continuity and Change. Proceedings of the Fourth International Polar Year Symposium, Inland Northwest Research Alliance, Fairbanks, Alaska.
23. Freissinet, C, Al-Houri, Z., Mensencal, Y., and Shatanawi, M., (2004). Space-Based Water Monitoring; From Local to Global-SMART. Proceedings of the 6th Cannes international water Symposium, Cannes, France.

Presentations

- Al-Houri, Z., Al-Omari, A.S. (2021). Green Infrastructure for sustainable water management in Amman, Jordan. Water Security and Climate Change Conference (WSCC 2021), Hanoi, Vietnam (online).
- Al-Houri, Z., Maaitah T., Albraim A., Abu-Sharkh A., and Abu Shamleh Y. (2018). Laboratory Study to Determine Runoff Coefficients of Two Types of Permeable Pavements. Water Security and Climate Change Conference (WSCC 2018), Nairobi, Kenya.
- Al-Houri, Z., (2014). Sustainable Urban Drainage Systems: Recommendation for Future Direction in Rainwater Management in Jordan. The Third International Conference on Water Resources and Environmental Management (ICWRE 2014), Antalya, Turkey.

- Al-Houri, Z., Al-Omari, A.S., and Saleh, O.A., (2014). Frequency Analysis of Annual One Day Maximum Rainfall at Amman Zarqa Basin, Jordan. Water in the Arab World: Status, Challenges, and Opportunities (WAWCO 2014), Amman, Jordan.
- Al-Houri, Z., Abu Hadba, O.K., and Hamdan, K. A. (2013). The Potential of Roof Top Rainwater Harvesting as a Water Resource in Jordan: Featuring Two Application Case Studies. International Conference on Civil, Environmental and Structural Engineering, Barcelona, Spain.
- Al-Houri, Z., and Al-Omari, A.S. (2012). Evaluation of Drainage Conditions along Selected Roadways in Amman. International Conference of Environmental, Biological, Ecological Sciences and Engineering, Venice, Italy.
- Al-Houri, Z., and Barber, M.E., (2010). Assessment of the SCS-CN initial abstraction ratio for predicting runoff treatment volumes during rain-on- snow events. International Sustainable Water and Wastewater Symposium, Oct 26-28, Konya, Turkey.
- Barber, M.E., and Al-Houri, Z., (2009), Frozen Soil Impacts on Stormwater Infiltration Treatment BMP Designs, 2009 UCOWR/NIWR Annual Conference, Urban Water Management: Issues and Opportunities, July 7-9, Chicago, Illinois.
- Al-Houri, Z. and M. Barber, (2009), Frozen Soil Impacts on Stormwater Infiltration Treatment BMP Designs, Lessons from Continuity and Change in the Fourth International Polar Year Symposium, Inland Northwest Research Alliance, March 4-7, Fairbanks, Alaska.
- Al-Houri, Z., Barber, M., Yonge, D., and Beutel, M. (2007). Consequences of Proposed Modifications of Existing Design Parameters for Improved Performance of Infiltration Treatment BMPs in Cold Climates. Water in the Pacific Northwest: Moving Science into Policy and Action Conference, Stevenson, Washington. (Poster) Poster Award: Honorable Mention.
- Shatanawi, M., Al-Houri, Z., Freissinet, C. Mensencal, Y., Badran, M., and Manasrah, R. (2004). Tidal Force and Wind Effect on the Hydrodynamics of the Gulf of Aqaba Using TELEMAT-2D. The INCO-MED Water Conference, June 14- 15, Amman, Jordan.

Technical Reports

- Shatanawi, M., and Al-Houri, Z. (2004). TELEMAT modeling Report-Jordan Case Study. Final Report to Sogreah Consultant. Contract number: ICA3-CT-2002- 10006.
- Shatanawi, M., and Al-Houri, Z. (2004). D08.1 Case Study Report, Aqaba, Jordan. Sustainable Management of Scarce Resources in the Coastal Zone (SMART), Final Report, Contract number: ICA3-CT-2002-10006.

Awards & Fellowships

- Distinguished Professors Award – Applied Science University (2016)
- First/Second Place Outstanding Academic Advisor – Jordan Engineers Association (2010, 2015, 2016)
- Doctoral Fellowship – Washington State University (2005–2008)
- Master’s Fellowships – University of South Carolina; Jordan University of Science & Tech.
- Excellence in High School Scholarship – Ministry of Higher Education, Jordan

Technical Training

- Introduction to Python. DataCamp Courses. Interactive course by Hugo Bowne Anderson (4 hours)-Virtual. 04/05/2022
- Python for Absolute Beginners. Talk Python Training by Michael Kennedy (7.2 hrs)-Virtual. 03/10/2022
- Big Data General Level Training Program. International Centre for Higher Education Innovation under the auspices of UNESCO-Amman, Jordan. 09/28 to 10/19/2020
- Arc-GIS. Royal Jordanian Geographic Center (RJGC)-Amman, Jordan. 02/02 to 02/11/2010
- Communication Skill. Applied Science University-Amman, Jordan. 09/28 to 09/30/2009
- BMPs Performance Course. US EPA Stormwater Program's Webcast Series- Pullman, WA. 02/06/2008
- Radiation Safety Course for Research, Industrial, and Analytical Radiation Machines. Radiation Safety Office, WSU-Pullman, WA. 09/20/2007
- TELEMAC-2D 5.2 Modeling System, a Software Used for Simulating Hydrodynamics of Free Surface Maritime on River Hydraulics. Sogreah Consultant-Grenoble, France. 08/10 to 08/30/2003
- MINITAB Statistical Analysis Software. Statistical Department-Columbia, SC. 01/21 to 02/03/1999

Professional Activities

University Service / Academic Service

- Academic Advisor – ASCE Student Chapter, University of Texas at Tyler-Houston Engineering Center – Aug 2023 to Present

Committee Memberships

- Curriculum Committee – Reviewing and updating course content to ensure alignment with accreditation standards (e.g., ABET).
- Faculty Search Committee – Participating in the recruitment and hiring process for new faculty members.
- Faculty Senate – Representing faculty in university governance and decision-making.

Conference Involvement

- The Second International Conference on Wadi Hydrology, Jordan- Organizing committee member- 2023
- The First Middle East Conference on Regional Environment, Amman Arab University- Scientific committee member-2017

Reviewer Roles

- Water Conservation Science and Engineering
- ASCE Journal of Sustainable Water in the Built Environment
- American Journal of Environmental Sciences

- World Academy of Science, Engineering, and Technology: International Scientific Committee and Editorial Review Board on Civil & Environmental Engineering
- Pakistan Journal of Scientific & Industrial Research.

Professional Memberships

- Institute of Sustainable Infrastructure (ISI)-2026
- Women Engineer Society (WES) – Since 2023
- World Academy of Science Engineering and Technology (WASET) – Since 2016
- American Association of Civil Engineering (ASCE) – Since 2011
- Jordanian Engineers Association (JEA) – Since 1995

LINKS

Google Scholar Profile:

<https://scholar.google.com/citations?user=9vOy2BsAAAAJ&hl=en>

ResearchGate Profile:

https://www.researchgate.net/profile/Zain-Al-Houri?ev=hdr_xprf

LinkedIn Profile:

<linkedin.com/in/zain-al-houri-ph-d-1960b8339>