Environmental Engineering and Water Resources Research
Currently at UNLV, researchers are actively pursuing research in environmental engineering, water quality, and water resources. This research, which is funded by multiple agencies and industries, specifically address very important questions to the state, the southwest, and the world.

We would like to introduce you to some of our researchers. Please feel to contact us if we can help with future collaboration.
Environmental Engineering and Water Resources
Research Areas of Expertise

- Geographic information systems (GIS)
- Microwave remote sensing
- Data visualization
- Hydrologic and hydraulic modeling
- Urban thermodynamic and hydrodynamic modeling
- Sustainable water resources management
- Water-energy nexus
- Vulnerability assessment to floods and droughts
- Estimation of water depth, soil moisture, and flooding using satellites
- Activated carbon and biochar adsorption
- Trace organic contaminants
- Environmental microbiology
- Adsorption processes and ion-exchange technology
- Bio-regeneration of ion exchange
- Water quality control
- Removal of organic and inorganic contaminants from water
- Disinfection byproducts and toxicity bioassays
- Stormwater pollution control
- Advanced oxidation with ozone
- Water quality data analysis
- Water uptake by plant roots at the rhizosphere scale
Environmental Engineering and Water Resources Research

Why UNLV?

• UNLV is situated in the center of a metropolitan area faced with serious challenges related to the availability and quality of air and water.

• UNLV’s researchers have contributed steadily to meet these challenges.

• UNLV’s researchers have established strong collaborations with federal and local agencies in addition to developing strong partnerships with industries.
Faculty Involved in Environmental Engineering and Water Resources Research

Dr. Sajjad Ahmad, P.E.
Chair & Professor, Department of Civil and Environmental Engineering and Construction

Dr. Jacimaria Batista, P.E.
Professor, Department of Civil and Environmental Engineering and Construction

Dr. Marie-Odile Fortier
Assistant Professor, Department of Civil and Environmental Engineering and Construction, Sustainability in Arid Lands

Dr. Dave James, P.E., F. NSPE
Associate Professor, Department of Civil and Environmental Engineering and Construction
Director, Solar and Renewable Energy Programs

Dr. Eakalak Khan, P.E.
Professor, Department of Civil and Environmental Engineering and Construction

Dr. Erica Marti
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Dr. Haroon Stephen
Associate Professor, Department of Civil & Environmental Engineering
Director, GIS and Remote Sensing Core Lab and Visualization Facility
Environmental Engineering and Water Resources Research Highlights
Dr. Sajjad Ahmad, P.E.
Chair and Professor,
Department of Civil and Environmental Engineering and Construction
Phone: (702) 895-5456
Email: sajjad.ahmad@unlv.edu
Website: http://faculty.unlv.edu/sajjad/

- Expertise
  - Water management in response to climate variability and change
  - Seasonal-to-interannual estimation of streamflow and precipitation
  - Hydrologic and hydraulic modeling
  - Estimation of water depth, soil moisture, and flooding using Satellite Remote Sensing
  - Sustainable water resources management
  - Water-energy nexus
  - Vulnerability assessment to floods and droughts
  - Public health
Dr. Sajjad Ahmad, P.E.
Chair & Professor,
Department of Civil and Environmental Engineering and Construction

Relevant Publications


Dr. Jacimaria Batista, P.E.
Professor, Department of Civil and Environmental Engineering and Construction
Phone: (702) 895-1585
Email: jaci.batista@unlv.edu

- Expertise
  - Wastewater treatment
  - Water reuse – brine treatment
  - Energy water nexus
  - Bioremediation of inorganics
  - Adsorption processes and ion-exchange technology
  - Biological nutrient removal
  - Bio-regeneration of ion exchange
  - Algal toxin treatment
  - Perchlorate treatment and remediation
  - Removal of arsenic, chromium, perchlorate, selenium, uranium, and fluoride from water
Dr. Jacimaria Batista, P.E.
Professor,
Department of Civil and Environmental Engineering and Construction

Relevant Publications

Dr. Marie-Odile Fortier  
Assistant Professor, Department of Civil and Environmental Engineering and Construction, Sustainability in Arid Lands  
Phone: (702) 894-1459  
Email: marie-odile.fortier@unlv.edu  

- Expertise  
  - Geographically specific life cycle assessment (LCA)  
  - Quantifying land use change and albedo change impacts of energy systems  
  - Parametric life cycle modelling of novel renewable energy and bioenergy technologies  
  - Assessing the efficacy of climate change mitigation strategies  
  - Determining the carbon footprint of bioproducts and of approaches to harness energy from wastes
Dr. Marie-Odile Fortier
Assistant Professor, Department of Civil and Environmental Engineering and Construction,
Sustainability in Arid Lands

- Yang S, Volk TA, and Fortier M-OP. (2020) “Willow biomass crops are a carbon sequestration system or low-carbon biomass feedstock depending on prior land use and transportation distances to end users.” *Energies* 13(16), 4251.
Dr. David James, P.E., F.NSPE
Associate Professor,
Department of Civil and Environmental Engineering and Construction Director, Solar and Renewable Energy Programs
Phone: (702) 895-5804
Email: dave.james@unlv.edu

• Expertise
  • Water quality data analysis
  • Paved road and vacant land dust emissions
  • Dust control
  • Sampling strategies, finite populations
Dr. David James, P.E., F.NSPE
Associate Professor,
Department of Civil and Environmental Engineering and Construction
Director, Solar and Renewable Energy Programs

Relevant Publications

Dr. Eakalak Khan, P.E.
Professor, Department of Civil and Environmental Engineering and Construction
Phone: (702) 774-1449
Email: eakalak.khan@unlv.edu

- Expertise
  - Removal of specific and bulk chemical contaminants from water and wastewater focusing on process development
  - Biodegradation of organic contaminants and method development for measuring biodegradability and bioavailability of bulk contaminants in water and wastewater
  - Impact of nanotechnology on microbes and bioprocesses
  - Fate and transport of contaminants in environment
  - Stormwater pollution control
Dr. Eakalak Khan, P.E.
Professor, Department of Civil and Environmental Engineering and Construction

Relevant Publications

Dr. Erica Marti
Assistant Professor,
Department of Civil and Environmental Engineering and Construction
Phone: (702) 895-2693
Email: erica.marti@unlv.edu

- Expertise
  - Water and wastewater treatment
  - Disinfection byproducts and toxicity bioassays
  - Potable water reuse
  - Fate and transport of trace contaminants (e.g., estrogen, pharmaceuticals)
  - Environmental analytical chemistry
  - Advanced oxidation with ozone
  - Activated carbon and biochar adsorption
Dr. Erica Marti  
Assistant Professor, Department of Civil and Environmental Engineering & Construction

Relevant Publications


Dr. Haroon Stephen
Associate Professor,
Department of Civil and Environmental Engineering and Construction
Director, GIS and Remote Sensing Core Lab and Visualization Facility
Phone: (702) 895-2623
Email: haroon.stephen@unlv.edu

• Expertise
  • Microwave remote sensing
  • Geographic information systems (GIS)
  • Land scatterometry and radiometry
  • Remote sensing applications to water resources and hydrologic studies
  • Data visualization
  • Integration of remote sensing, GIS, and global position systems for Earth system science research
  • Surface water hydrology
  • Urban thermodynamic and hydrodynamic modeling
Dr. Haroon Stephen
Associate Professor,
Department of Civil and Environmental Engineering and Construction
Director, GIS and Remote Sensing Core Lab and Visualization Facility

Relevant Publications