

PhD Student and Graduate Research Assistant Positions

Spring 2027 Intake | Irrigation Engineering and Water Management

Irrigation Research Laboratory (IRL) | Department of Biosystems and Agricultural Engineering | Oklahoma State University

Led by Dr. Sumon Datta, Assistant Professor and Irrigation Engineer

Overview of Positions The Irrigation Research Laboratory at Oklahoma State University is seeking **three highly motivated PhD students** to begin in **Spring 2027**. The selected students will contribute to externally aligned research programs that integrate field experimentation, crop water use modeling, evapotranspiration forecasting, remote sensing, soil water balance modeling, sensor data analytics, and decision-support tools for irrigation scheduling and water conservation.

Research Tracks

Track 1: Regional ET Forecasting - Funded by NASA
ET forecasting, remote sensing, and irrigation decision support

- Develop and evaluate approaches for short- to medium-range evapotranspiration forecasting.
- Integrate weather forecasts, satellite-based ET products, and NISAR soil moisture with irrigation scheduling tools - OASIS.

Track 2: Sorghum Irrigation Modeling

Crop choice, water productivity, and groundwater sustainability

- Model sorghum irrigation requirements under semi-arid and aquifer-dependent production systems.
- Combine FAO-56-based soil water balance with AquaCropOS for sorghum irrigation management.

Track 3: Cotton Irrigation Management

Sensor-informed scheduling for Southwest Oklahoma cotton systems

- Evaluate cotton irrigation scheduling using soil moisture, canopy temperature, weather, and ET data.
- Work with field-scale irrigation systems including furrow, center pivot, and subsurface drip contexts.

Desired Qualifications

Preference will be given to students who are already in the USA.

- Bachelor's and master's degrees in agricultural engineering, biosystems engineering, irrigation engineering, or closely related fields. If you do not have an engineering degree, you must pass Fundamentals of Engineering (FE) exam.
- Strong interest in irrigation water management, crop-water relations, evapotranspiration, soil moisture dynamics, agricultural water conservation, or data-driven agricultural systems.
- Proficiency in Python for scientific computing environments; experience with machine learning, geospatial analysis, remote sensing, crop modeling, or Docker/web tools is a plus.
- Experience with fieldwork, sensors, data collection, model calibration/validation, technical writing, and peer-reviewed publication is preferred.

Funding, Benefits, and Training Environment

Selected students will receive a competitive graduate assistantship package with stipend, tuition waiver, and health insurance support, subject to OSU and project funding policies. Students will receive training in irrigation engineering, field experimentation, scientific computing, crop-water modeling, remote sensing, stakeholder-driven water management, manuscript preparation, and proposal development.

Application Process

Interested applicants should submit **one combined PDF**: (1) current CV, (2) one-page statement of research interests and fit with one or more tracks, (3) unofficial BS and MS transcripts, (4) contact information for three references, and (5) publication, thesis chapter, code repository, or technical writing sample if available. Shortlisted applicants will be invited to apply through OSU Graduate College and BAE.

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DO NOT CONTACT IF YOU DO NOT HAVE BS & MS DEGREES