Geohydrology Internship Program

Kansas Geological Survey
The University of Kansas
Lawrence, KS

The Geohydrology Section of the Kansas Geological Survey (KGS) at the University of Kansas (KU) invites applications for **TWO** KGS Geohydrology Internship Program positions for the summer of 2021. The positions are available for upper-level undergraduates, recent graduates, or graduate students with an interest in the hydrogeology and biogeochemistry of intermittent streams. Established in 1997, positions in the KGS geohydrology internship program have been held by students from diverse institutions across the US and abroad. Many past participants have co-authored articles or conference presentations based on the summer work, and students would be encouraged to continue work on projects as part of an undergraduate or graduate thesis following the conclusion of the internship if interested.

POSITION: KGS Geohydrology Internship Program

STARTING DATE: Week of May 31, 2021 (flexible based on student schedule)

APPLICATION DEADLINE: First consideration given to application material received by **February 21, 2021**.

SALARY: Interns will be paid $15/hr with an anticipated 12-week, full-time work schedule. Expenses of travel to and from Lawrence are not provided. All work-related travel expenses will be provided by the Kansas Geological Survey.

DUTIES: The internships are 12-week summer positions during which the individuals will work with KGS and KU on a field-based study of the spatial variability and subsurface controls of groundwater recharge and nutrient mobilization in intermittent streams. While we are optimistic the interns will be able to join us in Lawrence in person, the internships can be conducted remotely if there are pandemic-driven travel restrictions.

We expect to hire two interns:
(Position 1): Biogeochemistry focus: This intern will focus on characterizing spatio-temporal water quality patterns and drivers in intermittent streams using field measurements and historical water quality data.
(Position 2): Hydrogeology focus: This intern will focus on characterizing groundwater-surface water exchange using a combination of historical hydrometeorological data, field measurements, and geophysical approaches.

While the students will specialize in these two subdisciplines, they will work together in an interdisciplinary manner to gain experience in all aspects of the project.

Intern duties may include:

1. 30% - Analysis of hydrogeological, geophysical, and biogeochemical data.
2. 20% - Laboratory analysis of water and sediment samples for soil texture and biogeochemical properties.
3. 20% - Preparing results for publication or presentation.
4. 15% - Installation and maintenance of soil and water monitoring sensors.
5. 10% - Collecting field measurements of hydrogeological and biogeochemical properties (infiltration capacity, soil cores, stream stage, water quality constituents, etc.).

6. 5% - Collecting or interpreting geophysical data.

REQUIRED QUALIFICATIONS:

- Relevant coursework in hydrogeology, hydrology, biogeochemistry, and/or geophysics.
- Interest in water science as evidenced by coursework and application materials.
- Clear communication skills as evidenced by application materials.

PREFERRED QUALIFICATIONS:

- Experience with any of the duties described above.
- Coding and data analysis using programmatic approaches (R, Python, MATLAB, etc.).
- Experience with GIS.

POSITION REQUIREMENT: Ability and willingness to participate in moderate physical activity in mid-summer temperatures in Kansas.

COVID RESTRICTIONS: Due to the ongoing pandemic and border closures, we will only consider candidates currently residing and authorized to work in the US.

APPLICATION PROCEDURE: Apply online at https://employment.ku.edu/staff/18492BR. Upload the following information:

- Cover letter (max 2 pages) indicating which position you are interested in, how you meet the required and preferred qualifications, and why you are excited about the position.
- Full CV.
- Contact information for 3 references (relation, email address and phone number).
- Academic transcripts (unofficial copies acceptable).

For further technical information contact Erin Seybold at erinseybold@ku.edu and Sam Zipper at samzipper@ku.edu. For other information, contact Annette Delaney at adelaney@ku.edu.

PROJECT SYNOPSIS:

The overarching goal of this project is to understand the influence of intermittent and ephemeral streams on water quantity and quality in Kansas. Students will work with KGS scientists and KU professors to quantify the quantity and variability of groundwater recharge, identify the physical controls on recharge in dry streams, and quantify the solute load from dry streams to receiving ecosystems. Participants will gain experience with numerous field methods including synoptic surveys of physical and biogeochemical parameters, detailed geophysical surveys, and installation of long-term monitoring equipment at study sites across Kansas.

KANSAS GEOLOGICAL SURVEY: A research and service division of the University of Kansas, the Kansas Geological Survey studies the geology of Kansas, develops new techniques for exploring and analyzing geologic data, and produces and disseminates maps, reports, and scientific papers. The KGS, created in 1889, now has an annual state budget of approximately $6 million and employs more than 90 scientific researchers, technical support staff, and students engaged in a variety of disciplines, including geology, geophysics, energy resources, geohydrology, stratigraphy, geoarchaeology, GIS and computer science, and public outreach. In addition to core and data repositories at its headquarters in Lawrence, the KGS operates a well-sample library in Wichita that is a repository for rock samples from oil and gas wells drilled in the state.

The KGS is organized into four research sections--energy research, geohydrology, geophysical exploration, and stratigraphic research--and a number of service sections. KGS researchers have available a variety of tools and equipment for the applied geosciences, including a state-of-the-art shallow seismic-reflection system, ground-penetrating radar, a direct-push unit, three drill rigs, well-logging unit, a distributed temperature sensing system, and electromagnetometers, as well as a rock-preparation lab and an analytical-chemistry lab. Technical support includes editing, publishing, and cartographic services and full-service support for a diverse array of computing platforms and software, GIS, and web applications. The KGS also houses and operates the Kansas Data Access and Support Center, an important source of state geospatial data. Further information about KGS activities can be found at www.kgs.ku.edu.

KGS scientists are internationally recognized for their work in the applied geosciences. The staff includes four Fellows of the Geological Society of America and a Henry Darcy Distinguished Lecturer of the National Ground Water Association. Current staff members have received the Kirk Bryan Award for Excellence from the Geological Society of America, the Distinguished Achievement Award from the Society of Exploration Geophysicists, and the University of Kansas Research Achievement Award as well as numerous awards for technical presentations, achievements, and noteworthy service contributions.

LAWRENCE: A city of approximately 90,000, Lawrence is located on a rolling landscape 35 miles west of the major metropolitan area of Kansas City and 20 miles east of Topeka, the state capital. Home to Haskell Indian Nations University as well as KU, Lawrence offers the cultural and athletic events of a university setting. For more information on Lawrence, please visit the Lawrence Convention and Visitors Bureau or the City of Lawrence web pages.