

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 **multiple** KGS Geohydrology Summer Research Assistantship positions for the summer of 2023. The positions are available for upper-level undergraduates, recent graduates, or graduate students with an interest in interdisciplinary water science, including biogeochemistry, ecohydrology, and hydrogeology. Established in 1997, positions in the KGS summer 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. More information on the internship program is available here: <https://www.kgs.ku.edu/Hydro/gipIndex.html>

RESTRICTIONS: Only candidates with the appropriate U.S. work authorization will be considered.

POSITION: KGS Geohydrology Summer Internship (3-5 positions)

STARTING DATE: Week of May 29, 2023 (flexible based on student schedule)

APPLICATION DEADLINE: First consideration given to application material received by **February 17, 2023**.

SALARY: Interns will be paid \$15/hr with an anticipated 12-week, full-time (40 hrs/week) work schedule. All work-related travel expenses will be provided by the KGS, but the KGS does not provide lodging nor expenses of travel to/from Lawrence.

DUTIES: This assistantship is a 12-week summer position during which interns will work with scientists and staff at KGS while contributing to externally-funded research projects. Projects that may support interns in 2023 include: investigating water quantity and quality in intermittent streams; evaluating irrigation management strategies to promote groundwater sustainability; and characterizing the drivers of water availability and water quality in the Kansas River corridor.

In 2023, we anticipate hiring between 3-5 interns depending on funding. Interns can apply for one of two tracks:

- **Biogeochemistry Track** (supervised by [Erin Seybold](#)): These interns will conduct research focused on understanding the drivers of groundwater and surface water quality in diverse settings. This may include collecting and analyzing water quality samples, working with high-frequency water quality sensor networks, and synthesizing and analyzing long-term water quality data. Projects on this track may include both field work and data science approaches.

- Ecohydrology Track (supervised by [Sam Zipper](#)): These interns will conduct research on the characterization and analysis of groundwater and surface water resources, and interactions between water resources, society, and ecosystems. Projects on this track will primarily be data science and modeling-focused, but may also include field research.

Interns will work closely with their supervisors to design suitable summer research projects that meet project needs and align with intern career goals. While the interns will specialize in one of these two tracks, they will have opportunities to work together and with other students to gain interdisciplinary experience and exposure to a variety of field and computational methods.

Intern duties may include:

- 30% - Synthesis and analysis of hydrological, meteorological, geophysical, and/or biogeochemical data.
- 20% - Collecting field measurements of hydrogeological and biogeochemical properties (infiltration capacity, soil cores, stream stage, water quality constituents, etc.).
- 20% - Developing and/or using hydrological, agronomic, and biogeochemical models.
- 20% - Preparing results for publication or presentation.
- 10% - Laboratory analysis of water and sediment samples.

Percentages for each duty will vary depending on the specific project the intern works on.

REQUIRED QUALIFICATIONS:

- Relevant coursework in hydrogeology, hydrology, and/or biogeochemistry.
- Interest in water science as evidenced by coursework and application materials.
- Data analysis and visualization experience, preferably using programmatic approaches (R, Python, MATLAB, etc.).
- Clear communication skills as evidenced by application materials.

PREFERRED QUALIFICATIONS:

- Experience with any of the duties described above.
- Experience with field-based data collection.
- Experience with GIS and/or remote sensing analysis.
- Ability and willingness to participate in outdoor physical activity in mid-summer temperatures in Kansas.

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APPLICATION PROCEDURE: Apply online at <https://employment.ku.edu/staff/24185BR>.

A complete application will consist of the following:

1. Cover letter (max 2 pages) indicating the following:

- a. which research track you are interested in: Ecohydrology or Biogeochemistry
 - b. how you meet the required and preferred qualifications
 - c. how the internship will help you reach your career goals
 - d. what strengths you feel you have professionally, academically, and/or technically
 - e. what areas you have room for improvement professionally, academically, or technically
 - f. anything else you want us to know about you or that you would like to share
2. Resume/CV
 3. Contact information for 3 references (email address, phone number, and relation to reference)
 4. Academic transcripts (unofficial copies acceptable).

Preference will be given to applicants whose application materials are received by February 17, 2023.

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

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 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 100,000, 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.

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