Graduate Assistantship at University of Louisville Department of Civil and Environmental Engineering

Job Overview:

The University of Louisville Department of Civil and Environmental Engineering is **seeking a graduate assistant who wishes to pursue a PhD in the field of water resources and geotechnical engineering**, with a focus in hydrogeology and flooding.

The **graduate assistantship is fully funded** and covers tuition, a stipend ($25,000/year), and health insurance. The position is to start in the Spring or Summer of 2025.

Job Duties:

The student will be a joint advisee of Drs. Omid Ghasemi-Fare and Tyler Mahoney in the Civil and Environmental Engineering Department and will be funded by the NSF EPSCoR Track 1 CLIMBS project (see more information here).

Dr. Ghasemi-Fare's research focuses on thermo-hydro-mechanical-chemical modeling, unsaturated soil, soil characterization, hydrometeorological hazard prediction, microstructural analysis of soils, evapotranspiration from bare soil, multiphase flow in the subsurface, reliability-based design in geo-infrastructure, and environmental geotechnics (see Dr. Ghasemi-Fare's Google Scholar page here).

Dr. Mahoney studies surface water hydrology and related disciplines in watersheds. Dr. Mahoney's research focuses on using process-based numerical models, machine learning, and sensing/tracing technologies to investigate transport mechanisms of water and sediment and how anthropogenic stressors impact such processes (see Dr. Mahoney's Google Scholar page here).

The student will be expected to leverage state-of-science tools in hydrology, geotechnical engineering, and hydrogeology to understand flash flooding in small headwater systems in eastern Kentucky. Additionally, the student will be expected to communicate research findings to broader engineering and water resources communities and collaborate with researchers both within the University of Louisville and at other research institutions.

Responsibilities and Qualifications:

Relevant tasks include: 1) leveraging remote sensing, numerical models, statistics, and/or field monitoring to understand hydrogeologic processes, especially related to floods; 2) communicating research findings via scientific journal articles, 3) utilizing sensors and remote sensing to monitor hydrologic processes, 4) taking graduate classes related to water resources, geotechnical engineering, numerical methods, and hydrogeologic modeling, and 5) presenting research at local, national, and international conferences. The student is expected to meet weekly with Drs. Ghasemi-Fare and Mahoney to discuss research progress.

Successful applications will have the following qualifications:

1) Preference will be given to students who have previously earned an MS degree in the field of civil engineering with a focus on water resources and geotechnical engineering or a similar discipline with desire to pursue a PhD.
2) Students should have the ability to obtain a valid driver's license in the United States and the ability to conduct field work as required.
3) Students should anticipate starting the position in Spring or Summer of 2025. International applicants should consider logistical requirements of obtaining a visa when applying.
4) International applicants should have an English proficiency score to apply (*TOEFL* > 80, or *Duolingo* > 105, or *IELTS* > 6.5).
5) GRE Q+V>295 is required.

Successful candidates will also demonstrate the following skills in their application:

1) excellent written and verbal communication skills,
2) a basic understanding of hydrology, hydrogeology, and environmental science, or similar natural resource related disciplines,
3) a basic ability to code (e.g., MATLAB, Python, R), utilize software such as GIS, and understanding of remote sensing,
4) basic understanding of calculus, physics, numerical methods, and statistics, and
5) the ability to effectively collaborate as well as work independently.

Application:

Applicants are asked to submit the following material to Drs. Ghasemi-Fare **and** Mahoney in a single email addressed to both Drs. Ghasemi-Fare and Mahoney: 1) **a one-page personal statement** demonstrating your interest in the graduate assistantship, career goals, and qualifications; 2) **a resume or CV** detailing previous experience and relevant skills including any publications, if applicable; and 3) **an unofficial transcript** that highlights relevant classes taken. Please submit applications to omid.ghasemifare@louisville.edu and tyler.mahoney@louisville.edu.

Review for applications will begin on 9/23/2024 and will continue until the position is filled. Interviews will be conducted on a rolling basis. Please direct questions to Drs. Ghasemi-Fare **and** Mahoney: omid.ghasemifare@louisville.edu and tyler.mahoney@louisville.edu.

If chosen for the assistantship by Drs. Ghasemi-Fare and Mahoney, you will then need to submit an official application through the University of Louisville Graduate School (information can be found here). A formal offer for the position cannot be extended until you have received acceptance through the UofL Graduate School.

For more information on degree requirements and required qualifications for admission to the University of Louisville, prospective students are encouraged to visit the University of Louisville's Civil Engineering PhD program overview at the following link.