

The Department of Agricultural and Biological Engineering at the University of Florida (UF) is excited to announce a PhD research opportunity to investigate how conservation practices can help improve agricultural sustainability locally and regionally. The PhD research will quantify the interactions between agricultural management practices and nutrient loadings and identify water and nutrient transport pathways (surface water and groundwater) to downstream waterbodies at the field and watershed scales using mathematical models.

Specifically, the research project includes:

1. developing a set of simulation models coupled to each other to describe the water, sediment, and nutrient loading and transport processes happening in study watersheds in South Florida,
2. evaluating the field and watershed-scale effectiveness of agricultural conservation practices, including crop rotation (between sugarcane and flooded rice),
3. exploring alternative management practices and options for further effectiveness improvement,
4. optimizing the application timings and locations of conservation practices for maximized overall watershed-scale effectiveness.

This research is part of a Conservation Effects Assessment Project (CEAP) project supported by USDA-NRCS (<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/ceap/>). This PhD research will focus on the modeling effort and be closely integrated with monitoring studies and geospatial analyses that the UF-CEAP project team is conducting in South Florida. The monitoring-modeling and surface-groundwater integrated approach is expected to provide a solid and holistic picture of water and nutrient transport processes and their responses to agricultural conservation practices.

The candidate(s) should have degree/s in agricultural/civil engineering, soil and water sciences, or other related disciplines with a strong background in hydrology, soil science, modeling, and/or water quality. Previous research experience in sediment and nutrient transport modeling and/or groundwater modeling is desirable. Excellent data analysis, communication skills, and the ability to work in an interdisciplinary team are essential requirements. Experience in programming (FORTRAN and MATLAB) is also desirable. The PhD student will interact with local stakeholders (growers and farm managers) and NRCS scientists and collaborate with other team members, including graduate students, post-doctoral research associates, lab/field technicians, and faculty from multiple academic units at the University of Florida.

The selected candidate will be enrolled in the PhD program of the Agricultural and Biological Engineering Department at the University of Florida. The selected candidate will be offered a competitive annual stipend for four years plus a full tuition waiver and other benefits. The PhD research program will begin in 2022 Spring.

Interested qualified applicants are encouraged to send their CV, copies of transcripts, TOEFL (for international candidates only), and the contact information of three professional references with an application letter to Dr. Young Gu Her at yher@ufl.edu. GRE is NOT required, but feel free to submit it if you have one. The position will remain open until a suitable candidate is identified.

Young Gu Her

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<https://abe.ufl.edu/people/faculty/young-gu-her/>, <https://trec.ifas.ufl.edu/faculty/yher/>,
<https://trec.ifas.ufl.edu/hydrology/>