The Global Change Biology and Stable Isotope Biogeochemistry lab at the University of Illinois at Urbana-Champaign (UIUC) is seeking an undergraduate student for an innovative NSF-funded REU project integrating ecosystem ecology, biogeochemistry, and environmental microbiology. The project will contribute to a larger effort to improve understanding of when, where, and why the microbially mediated process, dissimilatory nitrate reduction to ammonium (DNRA), is an important soil nitrogen transformation process in terrestrial ecosystems. DNRA retains nitrogen in ecosystems to support plant productivity and reduce water pollution resulting from nitrate runoff; it also competes with other microbially mediated nitrogen transformations to decrease soil emissions of nitrous oxide, a potent greenhouse gas that contributes to climate change. Despite its potential importance, DNRA has generally been disregarded in non-flooded terrestrial ecosystems because of the misconception that it is restricted to conditions found in flooded environments, such as wetlands and rice paddies.

During the 10-week program, the REU student will gain hands-on training and valuable experience in both field and laboratory research conducted on the UIUC campus, including the option to learn about stable isotope pool dilution and tracer methods, quantitative polymerase chain reaction, or Illumina sequencing of soil microbial genes. The student will be guided in the development of an independent project that culminates in an oral presentation of the project results to the lab group. The selected student will be primarily mentored by Dr. Wendy Yang, an ecosystem ecologist and biogeochemist; Dr. Robert Sanford, an environmental microbiologist; or Dr. Joanne Chee-Sanford, a microbiologist; placement will be determined based on the student’s expressed interest.

Program details:

- The program runs for 10 weeks, from May 29, 2018 to August 3, 2018.
- Travel expenses to/from Champaign-Urbana, Illinois and lodging will be provided.
  - The student will receive a weekly stipend.

Qualifications:

- U.S. citizens, U.S. nationals, or permanent residents of the United States
- Must be enrolled in a baccalaureate or associate degree program (part-time or full-time); transfer students and high school students accepted into and starting a degree program in Fall 2018 are eligible
  - Prior research experience NOT required
- Has a strong interest in ecosystem ecology, biogeochemistry, environmental microbiology, or related fields
- Shows academic promise

Applications are due by March 23, 2018 and should include the following:

- 1-2 page cover letter, including responses to the following three questions:
  1. Which faculty mentor are you interested in working primarily with, and how does that investigator’s field of research relate to your interests?
  2. What do you hope to gain from this research experience?
  3. What do you envision yourself doing career-wise 10 years from now?
     - CV/resume
     - Transcript (unofficial is ok)
     - Contact information for 3 references

Applications and questions should be sent to Dr. Wendy Yang at yangw@illinois.edu.

For more information about the Global Change Biology and Stable Isotope Biogeochemistry lab and the parent project for the REU project, please visit http://bit.ly/REU-UIUC