**DENIN Environmental Scholars Internships**

Dates of internship: Nov 1, 2019 – May 7, 2019

Location: Pearson Hall, University of Delaware, Newark, DE 19711

Number of positions available: 1

Faculty Mentor: Jing Gao

Graduate Student Mentor: Loonibha Manandhar

**Project Title:** Data Retrieval and Analysis for Understanding Water Quantity and Quality across the Continental U.S.

**Research Description:**

Spatial distributions of water quantity and quality, and their changes over time in relation to global environmental and societal change play determining roles for future water sustainability and security. This project will examine current and past spatial data on water quantity and quality over the Continental U.S., to understand how important water metrics vary across space and time. The intern will assist the identification, retrieval, and analysis of pertinent geospatial datasets.

**Research Questions:**

1. What data sources are available for analyzing water quantity and quality across the continental U.S.?
2. What data-driven metrics are effective for capturing spatial and temporal variations in water quantity and quality?

**Student Learning Objectives:**

This internship focuses on the development of the following professional and research skills.

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| Broad Professional Skills | Specific Skills |
| Planning and time management | Ability to set and complete specific goals of varying scope |
| Work independently | Independent work ethic - work independently to problem-solve |
| Collaborative skills | Learning to complete tasks efficiently and effectively with others |
| Express ideas in writing and verbally | Communicate with diverse audiences - Development of impactful poster and oral presentations. Honing ability to deliver scientific results to people of interdisciplinary background. |
| Broad Scientific Research Skills | **Specific Skills** |
| Understand scientific terms  | Theoretical and applied concepts regarding water quantity and quality, spatial analysis and modeling |
| Literature analysis | Ability to effectively find and utilize relevant scientific manuscripts |
| Use scientific tools | Data management and analysis software packages for geospatial data, especially statistical and spatial analysis tools. Design and generate effective figures and tables. |
| Recognize simple patterns in data analysis results | Apply scientific concepts to qualitative and quantitative data analysis results to interpret their scientific meanings |
| Understand, apply, and explain scientific concepts and theories | Form incremental research questions and plan methods for addressing challenges. Learn to effectively communicate results through oral presentations and writing. |

**Prerequisites:**

Proficiency with GIS.

**Work Environment and Expectations:**

Shared office space / computer access in Pearson Hall. Hours are flexibly determined between intern and mentor. Intern will work 10hrs a week on average during the project period. Intern will participate in and present at project team meetings and UD-wide symposiums.

**Stipend:**

$3,500 (direct deposit is required)

**Funding Source:**

National Science Foundation, Delaware EPSCoR Track I

**How to apply:** <https://ugresearch.udel.edu/PUB_Program.aspx>