Opportunity Title: USFS Research Opportunity in Economics of Climate Change and Water
Opportunity Reference Code: USDA-USFS-2021-0129

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-USFS-2021-0129

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application package consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Selected candidate must provide proof of completion of the degree before the appointment can start. Click **Here** for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations. At least one recommendation must be submitted in order for the mentor to view your application.

All documents must be in English or include an official English translation.

Application Deadline 11/1/2021 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

USFS Office/Lab and Location: Multiple research opportunities are available with the U.S. Forest Service (USFS) Rocky Mountain (RM) Research Station located in Fort Collins, Colorado.

At the heart of the U.S. Forest Service's mission is their purpose. Everything they do is intended to help sustain forests and grasslands for present and future generations. Why? Because their stewardship work supports nature in sustaining life. This is the purpose that drives the agency's mission and motivates their work across the agency. It's been there from the agency's very beginning, and it still drives them. To advance the mission and serve their purpose, the U.S. Forest Service balances the short and long-term needs of people and nature by: working in collaboration with communities and our partners; providing access to resources and experiences that promote economic, ecological, and social vitality; connecting people to the land and one another; and delivering world-class science, technology and land management.

The Station develops and delivers scientific knowledge and innovative technologies with a focus on informing policy and land-management decisions. Our researchers work in collaboration with a range of partners, including other agencies, academia, nonprofit groups, and industry. The Rocky Mountain Research Station serves the Forest Service as well as other federal and state agencies, international organizations, Tribes, academia, non-profit groups and the public.

Research Project: This project supports US Forest Service research and development around climate change, water, and watershed health. The goal of the program is to assess trends in the nation's water resources,

project future demand for those resources, and identify metrics to help guide management. The research takes an ecosystem services framework, meaning it focuses on human values as much as ecological integrity and pushes the frontier of understanding how those two interact. Most of the research involves computer modeling, basic statistics, and writing.

Participants have the option of pursuing one of two research tracts:

Water demand: The group maintains a national model of water demand and supply across sectors of the economy, including agriculture, household use, and energy. The model is used in climate change assessments to identify regions of the country that are likely to experience future water stress and possible mitigation strategies. Mitigation strategies include water transfers from agriculture to municipal uses, water storage, water conservation, and shifts from fossil fuel to renewable energy sources. Participants have the option of identifying a specific sector of interest and diving deep into that sector or working with data structures common across sectors. Participants will learn about climate change science and scenarios used in international climate change policy.

Watershed health: The nation's wetlands and waterways are threatened by such forces as climate change, land use change, sea level rise, and wildfire. This project works to identify metrics for watershed health that are useful for management. Conservation finance, for example, is increasingly used by the Forest Service to engage partners in watershed restoration, however, little research exists on the value or the effectiveness of those partnerships. If we are to treat watersheds like a financial asset (natural capital), we need to understand how to measure basic financial concepts like rate of return, variance, and returns on risk. Participants will build case studies in conservation finance, examining metrics commonly used and investigating ways to apply them to new watershed partnerships.

Learning Objectives: Participants will learn details of climate and water modeling, with a focus on scenarios used in the IPCCC Assessment Reports. Participants will gain an understanding of how climate scenarios impact natural resource use and how the Forest Service uses climate assessments in its day-to-day work and planning.

Mentor: The mentor for this opportunity is Travis Warziniack (travis.w.warziniack@usda.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: June 2021, September 2021, January 2022 (multiple openings available). Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for Summer 2021 or a semester, but may be extended upon recommendation of USFS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend

commensurate with educational level and experience.

- Undergraduate students (starting at $30,786/yr full-time), 15-20 hrs/wk during the semester or up to 30 hrs/wk during summer
- Graduate students (starting at $38,665/yr full-time), 20 hrs/wk during the semester or up to 30 hrs/wk during the summer
- Postdocs and early career researchers (starting at $58,585/yr full-time with Masters; starting at $70,883/yr full-time with PhD), 20-40 hrs/wk to be agreed upon before start of the fellowship

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and USFS. Participants do not become employees of USDA, USFS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email USForestService@orise.orau.gov and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received bachelor's, master's or doctoral degree in one of the relevant fields.

Strong computational, quantitative, and writing skills are strongly desired.

Eligibility Requirements

- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (3)
  - **Earth and Geosciences** (1)
  - **Environmental and Marine Sciences** (4)
  - **Mathematics and Statistics** (10)
  - **Social and Behavioral Sciences** (1)